ROSES

J. HORACE McFARLAND

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The Amateur's Book of

ROSES

AND HOW TO GROW THEM

The Amateur's Book of the Garden Series

Under the General Editorship of
LEONARD BARRON

The Amateur's Book of

THE VEGETABLE GARDEN
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ROSES AND HOW TO GROW THEM
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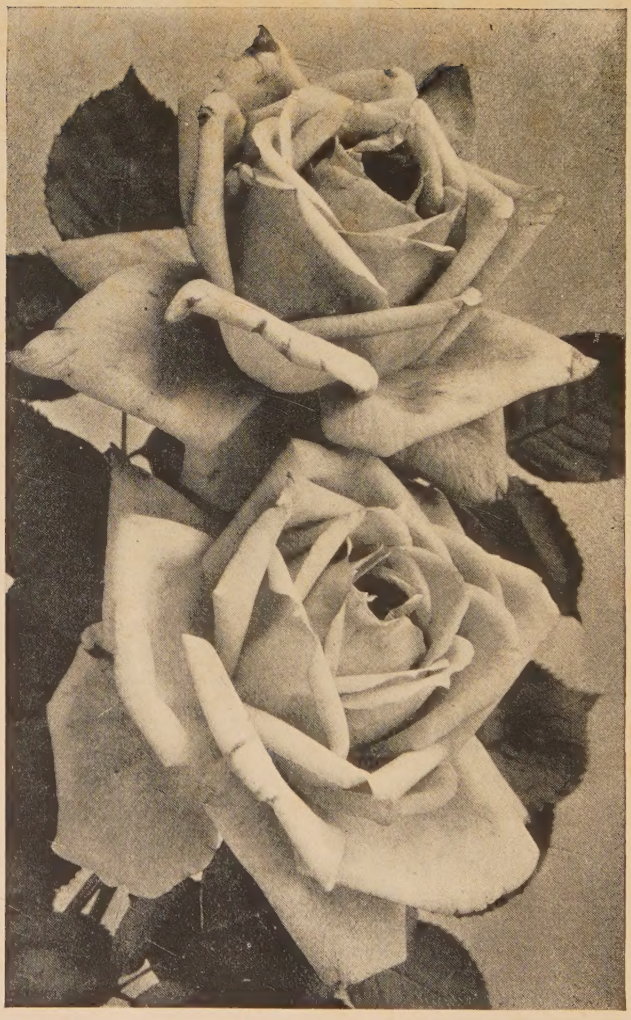

HT. Rose Hills America. Modern Hybrid-tea Rose produced by America's great rosarian, E. Gurney Hill, and an expression of all the best qualities sought in this popular type. Colour, deep pink

The Amateur's Book of the Garden Series

ROSES

AND HOW TO GROW THEM

REVISED BY

J. HORACE McFARLAND

GARDEN CITY NEW YORK
DOUBLEDAY, PAGE & COMPANY
1924

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First Edition

PUBLISHER'S NOTE

The present volume is a radical revision of "Roses and How to Grow Them" originally published in 1905.

In the nearly twenty years that have elapsed, the Rose has made many steps of progress in the American gardens and therefore it becomes necessary, not only to bring the information up to date, but also to simplify the matter by eliminating a good deal of what (though useful enough in itself) has long since served its purpose and outlived its usefulness. Thus we have practically a new book.

The reviser, Mr. J. Horace McFarland, has had in mind, always, the interests of the individual who grows Roses outdoors in his own garden, and therefore all reference to cultivation of Roses under glass, which has become an intensely specialized commercial and professional practice, has been omitted.

Chapter IV dealing with insects, diseases, and

spraying has been entirely rewritten in view of contemporary knowledge; and the "Rosarian's Calendar" has been made more practical for general use.

The chapter on "Types and Races" has been thoroughly revised but follows the original lines. And similarly the lists of "Varieties for Special Purposes" have been completely overhauled in the light of the data and facts made available through the splendid work of the American Rose Society; all of which has happened since the original of the volume saw the light.

The chapter dealing with Roses of American origin does not attempt to be a complete catalogue of varieties but rather an introduction to the individuals whose memory should be cherished.

An additional chapter appears on "Roses in Antiquity."

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THE AMATEUR'S BOOK OF ROSES

And How to Grow Them

CHAPTER I

When, Where, and How to Plant

It is not to be inferred that roses will grow only under ideal conditions; reasonably good plants and blooms can be attained in much less favourable situations. Many village gardens containing only a few feet of ground, and shaded for at least half of the day, yield flowers that are a delight to the growers and their friends; but happy is he who has the opportunity of selecting the best place for a rose garden and does it.

The ideal site for a rose garden is airy but sheltered (especially from the biting winds of winter), open to the sun some part of the day, quite free from the influence of large or growing

trees, and preferably a little above the general level of the rest of the garden. It must not be the lowest spot. A southern exposure is desirable, and, if it is necessary to make a choice, the morning sun is best. Partial shade will do less harm to dark-red roses than to roses of other colours. Some protection from high winds is good, but not at the cost of having a close, stuffy location.

The beginner in rose growing will do well to weigh carefully the advantages and disadvantages of available sites. The soil may be poor and unsuitable. We can change that by taking away the present soil and filling in with soil of better quality. Drainage and shelter can be provided, but if an error has been made in the site, all these accessories will avail little.

Low grounds are more subject to late spring frosts than adjacent places only a few feet higher, and late spring frosts are much to be dreaded after the tender shoots of the rose bushes have put forth. While shelter from high winds is very desirable, it must not be secured by trees whose roots can reach the beds. The roots of growing trees may be regarded as spreading from the trunk for at least a distance

equal to the height of the tree. Thus if a tree is sixty feet high the rose bed should be at least that distance away; if nearer, the tree roots will revel in the enriched soil of the bed and appropriate the food needed for the roses. If the bed must be made nearer than this it may be protected from encroachment of the tree root by sinking a four-and-one-half-inch brick wall below the bottom of the bed and building up to near the surface. But this is troublesome and expensive. A fence of hemlock plank will do well for some years, but the roots will eventually find their way through.

THE SOIL AND WHEN TO PREPARE IT

The best soil is a deep loam. Well-drained ground is essential and the site should never before have been used for roses, unless fresh earth is substituted for the old.

Roses abhor wet feet, and if the soil is wet it must be thoroughly drained. This can usually be accomplished by digging out the bed to a depth of three feet and filling in one foot with broken stone, bricks, cinders, gravel, or anything that will permit a free passage of water. If this is not sufficient and the water is not

carried away quickly, provision must be made for this by tile draining, but except in very extreme cases the drainage before mentioned will be sufficient.

Some weeks before planting, if possible—to allow for settling—the rose beds should be thoroughly dug to a depth of eighteen inches or more, independent of drainage, there being intimately mixed with the soil well-rotted stable manure up to one third of its bulk.

MAKING BEDS

The size of the beds may well be governed by considerations of convenience in after years. All the bushes should be readily reached without leaving the walks; the surface of the beds ought to be accessible in every part for frequent cultivation, while the expense and labour of cultivating unnecessary space should be avoided.

With the exception of the climbers and the Rugosas (which ought not to be planted in the beds at all), a space of eighteen inches from plant to plant is sufficient to meet the above requirements. Accordingly, rose gardens are usually laid out in parallelograms of any length, but with their width not more than five feet.

Such a bed may contain three parallel rows, eighteen inches apart, the outer rows twelve inches from the edge. The paths between beds should be not less than four feet in width, and this width could be increased to advantage. The paths look best if in grass, kept free from weeds and closely cut at all times; but well-rolled cinder, gravel, or crushed stone paths are good, and save troublesome weeding and edging, and they are unquestionably best in wet weather.

Beds for Hybrid Perpetuals made with a width of four feet will usually be found most satisfactory, as a double row can be planted at intervals of two and a half feet, which will be sufficient space for the strongest-growing varieties, and the beds can be worked and the blooms gathered without the necessity of trampling the soil.

Space may be economized by setting the plants not directly but diagonally opposite each other. They will then be one foot from the edge and thirty inches apart, and each plant will be fully exposed to the light and air and will not interfere with its neighbours.

For Teas and Hybrid Teas the width of the bed may profitably be reduced to even three feet, permitting double "staggered" rows to

be planted, eighteen inches apart and nine inches from either edge.

MAKING A ROSE BED ON THE LAWN

The preceding directions for soil preparation, for width of beds, and for planting, apply to beds that it may seem advisable to place in the lawn, with one difference. Where the sod is cut to form a rose bed, that sod itself may well be used to give humus, good texture, and fertility to the roses to be planted.

For this use the sods can be laid aside when digging the bed, having been for that purpose sliced off some three or four inches thick rather than dug into to spade depth. When the soil for the bed has been removed to at least two full spade depths, or something more than eighteen inches independent of any greater depth required for drainage as previously noted, the sods, chopped apart to clods of not more than four inches across, can be put in the bottom of the bed, preferably upside down, in a layer of four or five inches depth. Over this can be applied the manure and soil as previously prescribed, thoroughly intermixed.

It is a real advantage to sprinkle the exca-

vated soil liberally with ground bone, which is a fertilizer of desirable lasting quality. Dry hardwood ashes may also be added if available.

Beds on the lawn, and all other rose beds as well, should when finally settled and planted be below the surrounding surface of lawn or walk, and never above. If about an inch below the average grade, moisture is more easily received and conserved.

SPECIAL SOILS?

Much unnecessary difficulty has been permitted to surround rose growing through recommendations for over-elaborate soil preparation, not only in depth and drainage, but in texture and quality. When one realizes that roses naturally occur from Central America to beyond the Arctic Circle, that they flourish along the Atlantic coast and reach great luxuriance in California, it at once appears that the rose plant is most adaptable.

True, it does seem to delight in a stiff and heavy soil, one with much clay in it, but it also shows great vigour in the sands of Florida.

It is definitely insisted that the average Tea, Hybrid Tea, Hybrid Perpetual, Polyantha, and

China varieties do require rich soil, and it ought to be sweet, not sour. Any form of humus—as leaf soil from the woods or the muck pile—will suitably open and make useful the heavy clay soils, and *per contra*, clay may well be added with rotted manure to soils that are sandy or unusually light. As previously noted, good drainage is essential, for no rose will flourish in a swamp. Roses like and use much water, but it must be passing through and not standing in the soil.

The Hardy Climbing roses, the Rugosas and their hybrids, the Sweetbriers and the delightful "species" roses, are less particular as to soil preparation than the so-called bush or everblooming types. Good soil is desirable for all of them, but they will grow in places that would be inhospitable to the Hybrid Tea, for example. Rose beds in the lawn require no other edging than the grass, and indeed the more thoughtful gardeners deplore the placing among or around roses of any other plants. The queen of flowers reigns best alone!

WHEN TO PLANT

In the major part of the United States roses can advantageously be planted in the fall, if

the plants can be had and if proper protection over winter is available. Fall-planted roses, protected after the first light freeze, are ready to start growth in earliest spring, when growth is most valuable.

Generally, however, roses are planted in the spring. Early planting is most desirable where outdoor-grown dormant plants are available. These plants should be purchased or ordered in the winter, to be shipped at the earliest date in spring at which they may safely be transported.

Pot-grown plants, shipped in full leaf, can best be planted after all frost danger is over.

HANDLING NEWLY ARRIVED PLANTS

If the plants arrive in a shrivelled condition soak them thoroughly in water and bury them completely in a trench, again soaking them with water. Uncover them after three days and they will usually be found revived. If the plants arrive in wet weather, or when the ground is frozen, do not open the box, but place it in a barn or other dry place where there is no artificial heat. Cover it with matting or blankets if the weather is cold. When the weather is

dry and the conditions are fit for planting, unpack the roses in a place sheltered from the wind and the sun. From this time on it is absolutely necessary to avoid undue exposure of the roots. In sorting out the varieties while still under cover, use old mats or straw to keep the roots covered.

With the tender varieties, dormant planting out of doors is attended with much risk because of the inability of these plants to endure our rigorous winters before becoming established. Consequently, they need much more protection than the hardy sorts. Where the thermometer reaches 15° below zero it is better to defer planting until the early spring, provided the plants can be safely housed during the winter. This can be done by digging a pit about fifteen inches in depth in a dry, cold cellar or outhouse and packing the dormant plants in it, covering roots and tops with fine earth. After one good soaking with water they may be safely left until early spring unless they become *very* dry, in which case they may be watered again. After the plants become firmly established, which will be in one season, there is much less likelihood of their being injured by the cold.

In localities where late frosts are likely to occur, the newly planted roses may need a little temporary protection with loose litter or hay if they have started to grow. Cool nights without frost are not dangerous save to plants in full leaf brought from a greenhouse temperature. These need protection.

HOW TO PLANT

It is best to unpack the plants under the cover of some convenient shed, and to take to the beds at one time no more than can be properly protected near by or promptly planted. During this move some people protect the roots by dipping them in mud; others carry the plants about in pails with the roots immersed in water. All these precautions are taken to avoid the immediate and very harmful drying action of the sun, and especially of the wind, upon the fibrous roots of the plants. Hence the first rule for planting is to wait for dry soil and to select, if possible, a calm, cloudy day.

Too deep and too shallow planting are equally damaging; the first is certain to kill the plant by rotting the stem, and the second encourages the emission of "suckers" or wild growths from

the understock on which most roses are budded, besides otherwise putting an unnecessary strain on the roots.

The proper depth for budded outdoor-grown plants is about two inches lower than they stood in the nursery, thus covering the junction or bud, and encouraging the production of supplementary "own roots" above the main root-system of the understock, used for its greater vigour.

Even own-root plants ought to be set down somewhat. Roses love firm and cool soil around their roots, and shallow planting exposes the upper roots to the sun's heat. Planting about two inches lower, very firmly, and keeping the top soil loose and friable, is the best way to assure bloom and health.

BUDDED VS. OWN-ROOT ROSES

Rose plants are now obtainable in America in several classes, broadly divided.

Own-root plants come in small size, even from two-inch pots, called "one-year" roses; in larger plants, actually about a year old because they are propagated one summer and carried over in leaf in coldframes or cool greenhouses;

and in field-grown two-year plants of much larger size, shipped dormant, without leaves. There are also larger greenhouse-grown plants, equally tender with the first named, and called "two-year" roses. These smaller own-root plants are readily mailed long distances, if carefully packed, and sometimes give much satisfaction. They are less costly than the larger outdoor-grown budded roses, and can be planted much closer. They can also be had through a longer range of planting time, because they are shipped in full growth.

Their disadvantages lie in their susceptibility to mildew and black-spot, through chilling and exposure, especially if they are shipped from a warm greenhouse in full leaf, and in the fact that some varieties produce fewer blooms in a season on their own roots than when budded on a vigorous understock.

Budded roses are obtainable as "worked" on several understocks. Not much of the Brier stock, so largely grown in England, is used in America, where the Manetti stock is much more favoured. The latter is the standard stock for greenhouse roses, and is reliably hardy outdoors in the Middle States.

Many growers insist on having roses budded on the Japanese Multiflora understock, and there are records to show that in the general latitude of Philadelphia and New York this stock produces strong plants which bloom profusely and remain long in good health.

In California there is much use of what is known as the "Ragged Robin" understock. It is really the old Bourbon variety, Gloire des Rosomanes, one of the parents of the fine old Hybrid Perpetual, General Jacqueminot. In some portions of the East doubt as to the entire hardiness of this stock has been expressed.

Madame Plantier, a fine and hardy old white rose, quite good "on its own," is also used in Florida as an understock. It is hardy and vigorous, but "suckers" considerably.

Rugosa, or *Rosa rugosa* to be accurate, is the standard stock for tree roses, and is sometimes used for Hybrid Perpetuals and Hybrid Teas. It is hardy.

The lovely Cherokee rose of the far South (*Rosa laevigata*) is a good understock for regions that seldom have frost.

It is most desirable to have roses budded on an understock suitable for the climate in which

they are to be used in gardens, and to the classes in mind. Generally speaking, the Manetti stock is best for the hardy Hybrid Perpetuals, the "June roses" that give us the great burst of fragrant bloom in the month of brides. The Multiflora stock is suitable for the Teas and Hybrid Teas in the Middle States, and, if the budding is properly done on seedling stocks, not those raised from cuttings, it suckers least of all stocks.

WHAT IS A SUCKER?

Briefly, a sucker is a shoot arising from the understock of a budded rose, and is consequently not of the desired variety, which its persistence will starve and may kill. Suckers usually appear beside, not on, the main stem of the plant, because they come from the root, below the ground, if properly planted, and usually are quite different in colour of leaf and stem, in thorns, and in number of leaflets.

PLANTING BUDDED ROSES

Before planting each plant should be examined, all broken roots cut off cleanly with a sharp knife, and all eyes that can be detected

on the stock—i.e., the portion below the bud —should be removed. If this is not done, the eyes will push out and suckers will develop from them. One difference in appearance between a sucker and a root is this: the sucker swells the farther it is from the stem and the root tapers the farther it is from the stem.

A hole large enough to accommodate all its roots without crowding should be made for each plant. The collar or point where the bud was inserted and from which the new growth starts should be placed not less than two inches nor more than three inches below the surface of the soil, the roots spread out carefully, nearly horizontally, but inclining downward, care being taken that no two roots cross each other on the same level. If two have grown so that one must lie above the other, the earth must be carefully packed between. All the roots having been covered with fine soil free from fresh manure, the hole should be almost filled up and the soil *firmly* packed. This is very important, and the foot of a man of ordinary weight is not too heavy to accomplish the work well. Water the roots freely, and when the water is absorbed fill up to the bed level, and see that the union

of the stock is where it belongs, two inches below the surface.

When the roses are all planted, level the surface and make it fine with a rake or other cultivating tool, to provide a "dust mulch" for conserving soil moisture. The manure mulch, once favoured, is now "taboo" because it seems to encourage or harbour the unpleasant germs of "black-spot." It is, of course, presumed that the plants have been carefully and severely cut back before setting, save that in fall planting more wood is left on the plants until spring, when the final pruning is done.

PLANTING ROSES FROM POTS

Some rose-growers put budded plants in pots, starting growth to be ready for the sale in the spring, thus obviating with the tender varieties the damage of winter killing.

An objection to this is the crowding of the large roots that cannot be spread out in planting without endangering the life of the plant; but good plants may be obtained in this way, although the bloom is not so fine nor the growth so strong during the first year. In setting out pot-grown plants, either budded or on their own

roots, it is important to get them into the beds as soon as all danger of severe frost is over, in order that the plants may be firmly established before the heat of summer. Roses planted late in the season never do well, as they cannot attain sufficient vigour to withstand the burning heat of our summer sun.

The holes need only be made a little larger than the pot in which the plant is growing. Choose a cloudy day, in the afternoon, and after making the hole, knock the pot off by inverting the plant and striking the edge sharply on a firm substance. The handle of a spade, which has been fixed in the ground in an upright position, will answer the purpose. Fill the hole with water, press the ball of earth between the hands to loosen the particles, and insert to the required depth, budded plants as previously directed, and own-root plants about half an inch deeper than when in the pot. Fill in with soil and pack the earth around firmly. Pot-grown plants will require staking if the varieties are of upright growth.

CHAPTER II

The Routine of Work

The beds once properly made and planted, constant and regular cultivation is the secret of successful rose culture. Just before growth begins in the spring (about April 15th in New York), the winter's protection of evergreen boughs or other material should be removed from the beds, and the surface cultivated. Deep cultivation is not desirable, as the roots are likely to be injured or broken. Three inches in depth is quite sufficient to cultivate a bed that has not been trampled upon. Use a four-tine digging fork, as it is less apt to cause injury than a spade. The beds should then be edged and raked.

Throughout the entire season until the middle of July frequent stirring of the surface with a hoe and a sharp steel rake is absolutely necessary for all the rose beds. The soil should never be permitted to become baked. After a hard rain,

when the surface has been beaten down, it should be loosened as soon as it is dry enough to work, and should be kept loosened. This is one of the most important points in the cultivation of the rose.

SUCKERS

During this cultivation, and at all convenient times, keep a sharp lookout for suckers, which, as described in the previous chapter, are growths shooting up from the understock below the bud graft.

A little critical study of the rose plant will enable any thoughtful person to distinguish these undesired growths, which as previously noted are beside the main stem, and are always, whether the understock be Brier, Manetti, Multiflora, Ragged Robin, or Madame Plantier, markedly different from the normal appearance of the Tea or Hybrid Tea rose. Usually the understock produces leaves with seven leaflets and of different colour. The suckers should be carefully broken off at their point of junction with the root, if this can be done without disturbing the plant. Otherwise they should be cut off as low in the ground as the shears will

reach. If this detail is neglected the result may be a flourishing group of shoots from the understock, not disposed to bloom at all, and so absorbing the root energy as to cause the budded variety to languish, and eventually to die, leaving an undesirable "wild" rose.

LIQUID MANURE

As soon as the flower buds begin to form about half a gallon of weak liquid manure should be poured around each plant weekly as long as the plant continues to bloom. A good time to apply this is just before a rain, as it will thus be washed down to the tender feeding roots and eagerly appropriated. The liquid manure should not be too strong. "Weak and often" is the gardener's motto. Half a bushel of cow manure to a barrel of water is about the proper strength. The liquids collected from the barn and stable, diluted to the colour of ginger ale, may be used in the same quantities.

Frequent syringing with clean water, or spraying with a hose, when that is accessible, will do much to keep the leaves in a healthy condition. This is especially necessary near

a large city, a factory, or a railway where soft coal is burned. The floating particles lodging on the leaves fill up the pores, which are the lungs of the plant, and unless the foliage is kept clean the plant will speedily sicken and the leaves drop prematurely. In extreme cases in towns it is necessary to sponge the leaves in order to open the pores, but frequent syringing under ordinary circumstances will be sufficient. The frequent showering with water will also keep insect pests in check, especially aphis and red spider.

CUT THE FLOWERS FOR MORE BLOOM

When the roses are in bloom, be generous to your friends. Cut as many as possible each day. On the plant they soon attain their full development and fall away. They endure longer when cut and put into water indoors. Cut in the early morning before the flowers are fully open. It is better for the plant to have the flowers picked as freely as possible, and with as long stems as the growth will permit, merely observing the precaution of leaving an outward-growing eye, or perhaps two for safety, on the stem below the cut.

Where it has been found impossible to pick all the roses for use, then the plants should be gone over daily and all faded flowers removed to a point at least two eyes below the flowers. A regular practice of this precaution is the only means of insuring some autumnal bloom from the Hybrid Perpetuals.

DISBUDDING

For large flowers, disbud freely on all free bloomers and a very much finer effect will be obtained than if the plant be permitted to try to mature all the buds that it forms.

Some varieties form large clusters of buds at the terminal point of the leading shoots, and if all these buds are allowed to remain the vigour of the plant is distributed among the group, so that the best results cannot be obtained unless one is striving for general effect. If fine single specimens are desired, the best bud only should be retained and all the others removed as soon as they can be pinched off. The centre bud is usually the strongest, but as it may possibly be malformed, the most promising bud should be selected.

Many rose-lovers will prefer the profusion

of flowers given by the June bloom-burst of the Hybrid Perpetuals.

Save for the production of exhibition blooms, the Teas and Hybrid Teas give a quite satisfactory result without disbudding, but the quality of bloom within a season is considerably increased if, as previously suggested, the flowers are constantly cut with liberal stems.

No disbudding need be considered for the various climbing roses, or for the Rugosas, Polyanthas, Hybrid Brier, and "species" roses.

SUMMER MULCHING

Since roses do best in comparatively cool and moist soil, a summer mulch is beneficial. Because of its tendency to harbour the "black-spot" organisms, a manure mulch is no longer found advisable. Peat-moss is a most effective mulch material, retaining moisture, keeping down weeds, and maintaining protection from the sun. Tobacco stems, the refuse from cigar manufacture, either as baled for sale or ground into a convenient texture, provide an excellent mulch material, serving not only to retain moisture but to prevent the ravages of the aphis, and when spent and worked into the soil, give

HW. Rose Purity. Raised in the American nurseries of Hoopes Brothers & Thomas. It is a sturdy trellis or pillar Rose. Colour, pure white

a distinct fertilizing value. The "dust mulch," resulting from finely pulverized top soil, is also effective, and it costs only a little "elbow grease." One grower who carefully saves all leaves and vegetable waste for a compost heap finds the resulting leaf soil a good mulch and an excellent fertilizer.

WINTER PROTECTION

The "Rose-Zone Map," prepared for the American Rose Society by the Federal Bureau of Plant Industry, and first published in the *American Rose Annual* for 1920, outlines four regions in the United States, in the first and southernmost of which even tender Tea roses are hardy outdoors without any protection. Much of California, part of Arizona, most of Texas, Louisiana, Arkansas, Mississippi, Alabama, Georgia, and South Carolina, and all of Florida, are in this zone.

The second zone runs from New Mexico east in an irregular line above the first zone, touching Colorado, Kansas, Missouri, southern Iowa, Illinois, Indiana, Kentucky, Tennessee, North Carolina, West Virginia, Maryland, and Delaware, within which territory Hybrid

Tea roses are considered safe without protection.

North to the Great Lakes, the New England and middle western and northwestern states is the region in which the Hybrid Perpetuals are expected to endure without protection.

The zone in which only the wild roses indigenous to the neighbourhood may be expected to survive includes the high regions and the dry regions.

Any rose is hardy anywhere if sufficiently protected, a fact which needs to be impressed on present and prospective rose-growers. It is not difficult for the amateur to determine the protection required for his roses in these days of widely accessible and accurate weather reports.

Generally speaking, roses suffer winter damage less from cold than from exposure to alternations of high winds and warm sunshine. Good protection, in all but the regions which have zero-minus temperatures for long periods, is in keeping off the wind and the sunshine rather than in close and sometimes smothering coverings.

In the second zone above mentioned the

tender Tea roses can be wintered, save in locations particularly high or exposed, by a protection of evergreen boughs, salt hay, the heavy grasses, or cornstalks, and in the northern or higher parts of this region both Hybrid Teas and Teas and Polyanthas ought to have this sort of protection.

In the third zone, where the Hybrid Perpetuals and the Rugosas are presumably hardy in the open, they are, especially in the northern and more exposed portions, better for the same treatment. In this zone the Hybrid Teas require more protection, such as is given, for example, in the rose-loving "Finger Lake" region of New York, by either bending over and tying down the canes under a covering of burlap, heavy stakes preventing breakage by snow, or by a framed covering of boards close enough to shed rain on top. Or in the same region roses are carried over by covering them with earth, ample drainage being provided to prevent wet freezing.

For reasons previously given manure is now thought to be a dubious protection, and reports of the rotting off of roses about which it has heated are frequent. Leaves, applied *dry* after

the ground is frozen, and held in place by boards or other covering *that will shed water*, are serviceable anywhere, but only as kept dry as aforesaid.

Care must be used not to apply protection until the ground is frozen, to bend down and tie or otherwise secure long canes, and to avoid material that will harbour and feed field mice.

In the region of the Great Lakes, the Hardy Climbing roses need protection by laying them down for an earth covering, in turn protected against excess moisture by boards to shed rain.

FERTILIZERS

The rose is a strong feeder and must not be neglected. Each year the beds should receive a dressing of manure. Indeed, animal manure, from one to two years old, is, where it can be obtained, the most desirable of foods for the rose beds. Cow manure is generally preferred, as it can be used most liberally without any danger from burning. Horse manure, when new, is very heating and should not be used while in this condition, not even as a winter

mulch. Hog, sheep, and chicken manures are also very useful, but the last two should, however, be used sparingly.

Of the commercial fertilizers, ground bone is the most useful. This may be obtained in several degrees of fineness and is often given in a mixture of grades—fine bonemeal, medium ground bone, and coarse crushed bone in equal parts. This may be used separately or to supplement animal manures. After the beds are well dug, scatter the bone on the surface until the ground is nearly covered; then, with the use of a fork, it can be quickly and thoroughly mixed into the already fine soil.

Nitrate of soda is one of the very best fertilizing agents we can employ if it is given early in the season and supplemented by bone later. It should be scattered thinly (say, about a tablespoonful to a plant) on the surface of the beds about every five weeks during the growing season, being then "watered in."

Emphasis is here laid on the necessity for digging in the animal manures when they are applied. Never should they be used save as thoroughly rotted and broken down, and then lightly forked in.

Rose-lovers are finding it increasingly difficult to obtain animal manures in these days of automobiles. The commercial sheep manure, dried and pulverized, is an excellent substitute, particularly as used with an equal quantity of ground bone or bonemeal. If the grower has access to any form of clean vegetable humus, either as sieved from his own muck pile or as purchased, a very satisfactory mixture can be made by adding this material in double the amount of the "sheep and bone." A liberal trowelful or two, stirred in around each plant at least three times in the season, will do good work.

Recently the value has been urged of phosphoric acid for rose fertilization. Bonemeal adds this, but "basic slag," a remainder of iron- and steel-making, also supplies it in an available form, adding lime as well, and both, with other substances, stimulating the production of certain beneficial soil bacteria. This basic slag may be applied at the rate of a handful to a plant. It is said to aid particularly in producing fragrance in roses.

Dry wood-ashes is a desirable fertilizer and soil-sweetener for roses, its potash content being also of much value. A scant trowelful to a

plant, between applications of "sheep and bone," will be right.

PROPAGATION

Many methods are employed in propagating roses, but the practice here described commends itself to the amateur because it is simple and effective. Cuttings can be rooted in the garden or in the greenhouse. For out-of-door work they should be made in November, before severe frost, of wood of the current year's growth. They should be cut into lengths of six inches, tied into bundles with tarred rope and buried in sandy soil eighteen inches deep, and furthermore protected from freezing by a covering of leaves. In spring, when the ground is thawed and settled, they should be planted in V-shaped trenches in well-prepared beds, using a little rotted barnyard manure. The cuttings should stand nearly erect and be so deeply planted that only one bud shows above the surface of the ground, two inches apart in the row, with the rows twelve inches apart. In this way many of the fine modern Multiflora and Wichuraiana hardy climbers can be multiplied, as well as many of the "species" roses now com-

ing to be used in the shrubbery. It must be admitted, however, that some of these latter are difficult to propagate, especially the lovely *Rosa Hugonis*, one of the very best for the hardy shrub border, with its abundant yellow flowers, but this rose grows readily from seed.

When they are grown under glass the same varieties will give a larger percentage of rooted plants if the cuttings are made two or three inches long, planted in pure sand, in pots or boxes, and kept in a greenhouse in a temperature of 45° F. These cuttings also should be made in autumn, before severe weather, of wood just completing its growth. They should be planted thickly, about one half their length deep, and well shaded for three weeks. Keep the temperature so low that the buds will not start into growth before a callus is formed or the cutting is rooted. The young plants can be set out in May or early June, either directly from the cutting bed or after having been established in pots.

CHAPTER III

Pruning

When roses are planted in the autumn, prune them as little as possible. All pruning is best postponed until after February. Sometimes, however, non-climbing roses will shoot up at the end of the season in pithy, worthless stalks or weak streamers, whose swaying in the high winds is likely to be injurious to the plants by disturbing the roots. Such pithy shoots should be cut out altogether and the streamers topped off.

The pruning of the hardy roses, climbers and non-climbing, should be completed by the middle of March. Tender roses may be pruned in early April; the object is to keep the covering undisturbed as long as possible, but to avoid waiting until the sap is running freely. A revision of the pruning will have to take place by May 1st anyhow, but it should be limited to what is indispensable. Prune back recently

planted roses rather vigorously, thus assisting them to get well started at the roots.

The degree of pruning each grower must decide for himself. If the largest individual flowers are sought the pruning can hardly be too severe; but for ordinary garden purposes a moderate cutting will be better.

The stronger the growth of the rose, the less it should be pruned; many such roses, if too severely cut back, will run to wood rather than bloom and some sorts will languish or die under extreme pruning. This refers primarily to the roses that bloom on shoots arising from wood of the previous year, and not to the varieties that bloom on the new wood of the year, such as the Hybrid Teas and the Teas.

In pruning, cut out all the dead wood and weakest shoots first. Where two limbs make a bad cross and are liable to chafe, remove one of them, remembering to keep the centre of the plant as clear as possible to admit the circulation of air. Now consider what you have left and what you want: if but few roses of surpassing size, then prune a vigorous plant to three or four eyes on the shoot; if you want quantity, leave six eyes, or even more. If the effect of

large masses is wanted, four or five canes may be retained three feet in length, and all very old or weak growth should be entirely removed. This will give a large number of flowers, effective in the mass, but small, and with short, weak foot-stalks scarcely able to support the weight of the blooms and not effective as cut flowers. This sort of pruning is entirely for outside show. After the bloom is over the canes should be shortened back at least one half so that the plant may make strong wood for the next season of bloom. Plants pruned in this way require strong stakes.

If quality is desired, all weak growth should be removed and every healthy cane retained and cut back in proportion to the development of each plant. The weakest should not have more than four inches of wood left on the root, while the strongest may have eight or nine inches.

The canes should be cut off about a quarter of an inch *above* an outside bud, and care must be taken that the wood is not torn nor the bud bruised. The shoot growing from the uppermost bud will usually be strong, and will grow in whatever direction the bud points. Therefore the highest bud left should point toward the

outside of the plant, that the head may be open and light and air admitted.

Roses pruned in this way do not need stakes. They are sufficiently strong and stocky to hold erect any weight they may be called upon to bear. They will require very little summer pruning if the blooms have been cut, as eight to twelve inches of wood are removed with each flower. Of course, the number of blooms will be much reduced, but the quality of the fine specimens obtained will amply repay the lack of abundance.

Pruning of Hybrid Teas and Teas may be profitably left until the first signs of life are discoverable, as evidenced by the bark becoming greener and the dormant buds beginning to swell. By that time any dead or dying wood can readily be detected, thus making it easier to select what should be removed and what retained. They do not need such severe pruning as that prescribed for the Hybrid Perpetuals; twice the amount of wood may safely be left if it is promising, though these roses will bloom even if cut to the ground.

The Bourbon roses, of which very few are grown in the central part of the United States,

require but little pruning. It is sufficient to cut out weak wood and to shorten slightly the main shoots.

In pruning the weak-growing varieties it will generally be found that the winter has done

A hardy climbing rose is best pruned by removing the old canes entirely and shortening others if necessary

most of the work already, leaving but little to choose from. In this case prune to the very soil, if necessary, to get to sound wood. If any-

thing remains at all after this apparent destruction, these same plants will be found to bear profusely before the season is over.

Rugosas, climbers, and pillar roses should be pruned as little as possible, merely removing the old wood past bearing, cutting out dead wood, and trimming back the ends of the remaining shoots slightly after training them. It may be stated here that in training all climbers you must avoid straight-up training, or the sap will all tend to the top, denuding the lower part of the plant. First bend the shoot in one direction or another, then let it tend upward if necessary. If a climber has developed more shoots than it appears able to support, the weakest may be removed, but one must remember that in most cases the bloom of any one year is best on the last year's shoots.

AUTUMN PRUNING

Before the high winds of November begin the bushy tops of all canes in the dwarf-growing varieties should be removed unless they are securely tied to stakes. This is to prevent the plants from being whipped by the wind and the tender feeding roots from being broken. It is

better to leave the canes about two feet in length. The plant should not be cut back to the point suggested for spring pruning, for a few hot days will force out the uppermost eyes, which later will be destroyed in the winter. Enough wood should be left to insure the safety of the eyes that are retained for the next season's flowers.

RULES FOR PRUNING VARIOUS CLASSES

1. *Hybrid Tea* and *Tea* roses, the so-called "everblooming" roses, bloom on growth of the same year, even though it may arise from the bud at the ground. The plants are not of the strong growth habit of the Hybrid Perpetuals, and are best as low bushes. When first planted they are preferably pruned sharply, to two or three buds above the ground. After being established, spring pruning had better be in accordance with the vigour and the condition of the particular variety. Weak growers, as are some of the choicest sorts, need more severe pruning and thinning out than the strong growers. All alike need to be considered from the standpoints of shapeliness and the non-interference of the twigs. Because all of these roses

bloom on shoots of the current year, and the production of such shoots is stimulated by judicious pruning, all can well be considerably cut back each spring, leaving from five to eight buds on the retained shoots, and always pruning to a bud which will start in the desired direction.

Hybrid Perpetual rose before pruning (General Jacqueminot)

These "everblooming" roses are so only as they are kept growing, and the prompt cutting of the blooms, with liberal stems, is a continuous pruning necessary to recurrent blooming.

2. *Polyantha* roses are more nearly everblooming than any other class. They require but little pruning aside from the renewal needed by all roses in cutting out the older twigs and the shaping accomplished by removing interfering branches. They are naturally compact and bushy.

HT. Rose, Caroline Testout. A generation old and still in the front rank. This salmon pink free-flowering and fragrant variety has been adopted as the official flower of the city of Portland, Oregon

3. *Hybrid Perpetual* roses need to be pruned toward obtaining and retaining a bushy form rather than the leggy form natural to the class. When first planted they need the same severe shortening to three or four buds, with the removal of redundant or ill-placed canes recommended for Hybrid Teas, and they seldom bloom the first year. The flowers are produced on shoots that arise from old wood, wherefore the spring pruning after they are established should be done accordingly. The illustrations on preceding pages show the treatment.

The same bush after pruning

There are, however, two ideals for pruning the Hybrid Perpetual roses. For general garden adornment, leave more canes, and leave them longer than if the design is to fewer and finer flowers—what the English call "exhibition" blooms. The "Gen. Jack" shown above would have but three canes left for the latter result.

After the main spring pruning the further treatment should be to cut flowers with long

stems, and generally to head back moderately after the great June bloom burst, fertilizing at the same time, to retain vigour and induce growth looking toward the production of some autumnal blooms. Frau Karl Druschki, for example, may thus be induced to give some superb fall flowers.

The weaker growers in this class, as in others, need the more severe pruning and thinning, and in all sorts renewal pruning should be constantly followed, to keep the plants vigorous and shapely.

4. The *Hardy Climbing* roses, both of Multiflora and Wichuraiana parentage, bloom on shoots which arise from wood of previous years, wherefore spring pruning should do no more than remove injured or interfering canes, with a slight shortening and shaping treatment. The main pruning for these splendid roses should follow the bloom period. In July and August the older shoots ought to be cut out at the base of the plant. Some growers remove all the wood that has flowered, while others cut away a judicious selection of the older canes. New canes arise from the roots which form the flowering wood for next year, and it is part of a good

pruning method to remove such of these as are deemed undesirable or are not well placed.

5. *Rugosa* roses and their hybrids require but little pruning save the removal of old and undesirable canes and a slight shortening in. It is practicable when the bushes become involved or unkempt to shear them off at the ground completely. The new growth renews the bush. Certain hybrids of extreme vigour, as Conrad Ferdinand Meyer, can be caused to flower more abundantly by arching and tying down the long shoots, or by tying to a wooden or metal frame. Blooming shoots arise from many more buds when the canes are not upright.

6. *Brier* roses and the *Species* roses, as used in the shrubbery and along driveways and parks, need but little pruning. The Austrian Copper type—Harison's Yellow and Persian Yellow—resent pruning, and will not bloom if cut back. The removal of dead, interfering, and redundant canes is all that ought to be done, and they will inevitably become "leggy" in consequence.

The Hugonis rose needs only gradual renewal by removal of the old canes, and the same is true of the Lord Penzance Briers, and of the

native roses of any country that form so fine an adjunct in the shrub border. Most of them will endure shearing to the ground for complete rejuvenation at intervals of several years. As many of these roses provide added beauty through their seed-pods or "hips," it is obvious that no pruning should occur until early spring.

Pruning in general rests upon a reasonable knowledge of the bloom and the growth habits of the subject, and upon the desired end. Hard-and-fast rules are possible, but can represent only one ideal. The major part of the roses we grow—the Hybrid Teas, the Hybrid Perpetuals, and the Hardy Climbers—are in our gardens diverted completely from their natural tendencies to a specialized use and form, just as a grape-vine is so diverted to man's informed ideals. It is only requisite for rose pruning, therefore, to know first whether the rose to be pruned blooms on wood of the current year, as do the Hybrid Teas, or on shoots arising from older wood; and second, what form is preferred. A vigorous bush may be made nearly a climber and a climber can be adapted both to the bush and the admirable "pillar" form—it is what one wants that governs!

A word may not be amiss as to pruning tools. The essential is a pair of dependable pruning shears, of any pattern comfortable to the hand, and the blades of which can be kept easily in condition to make sharp and clean cuts. A hooked pruning-knife, kept keen, is a desirable addition, as also is for occasional use a short curved pruning saw.

CHAPTER IV

Combating Rose Insects and Diseases

While it is true that the rose is attacked by many insects and diseases, it is also true that healthy plants, like healthy humans, are resistant to these troubles. Furthermore, rose sanitation, which means cleanliness of the plant and of the ground about the plant, likewise tends to protect from disease and to resist the attacks of insects, just as sanitation similarly provides favourable conditions for human beings.

The thing first to insist upon, therefore, in this matter of combating insects and diseases that particularly attack the rose, is that *the rose plants be kept growing* by careful attention and thorough fertilization during the growing season, and that the fertility of the ground in which they are planted shall not be diverted through weeds, but exerted wholly through the roses themselves.

It is further proper to insist, before separately treating the various insects and diseases in question, that the location of the rose beds has much to do with their health. Roses the roots of which are starved through proximity to some strong shrub or tree cannot be vigorous enough to sustain healthy life. Roses placed where there is not a free air circulation, and where there is a settling of cold air currents or fog in the night and early morning, are favourably disposed toward mildew and black-spot, the chief disease troubles that beset roses in America.

While it is true that the rose, particularly in the Tea and Hybrid Tea classes, needs a certain shelter from harsh and heavy winds, and is advantaged by not exceeding 20 per cent. of shade, preferably during the afternoon, it is also true that an open sunshiny situation is of the utmost importance for rose health and rose protection. The shelter of a distant hedge or a slope away from the prevailing winds is sufficient for the rose.

INSECTS

The Rose Aphid (*Macrosiphum rosae* Linnæus) is probably the most widely distributed

rose insect, and infests the queen of flowers both in the open and in the greenhouse. It is a small green or pinkish plant louse, found on the tender parts of the plant, particularly its terminal growths, in vast numbers, and there multiplying with great rapidity. It feeds by sucking out the plant juices, and thus stunts the tips of the branches and promotes the formation of imperfect and deformed flowers.

In the same class is the Small Green Rose Aphid (*Myzus rosarum* Walker) which particularly bothers roses in greenhouses and in California. It is about half as large as the first sinner above mentioned.

The Pink and Green Potato Aphid (*Macrosiphum solanifoliae* Ashmead) is a plant louse better known as a pest on potatoes, spinach, kale, etc. It has been found to be an important factor in the transmission of the mosaic disease of potatoes and spinach, and sometimes winters over on the rose in the egg stage, later doing its dangerous transmission work on the plants above mentioned.

Control—All of these aphides, or lice as they are, may usually be dislodged with a stiff stream of water from the garden hose, and that

is a simple and practicable means of destroying them. In small gardens the thumb and finger of a hard-hearted friend of roses usually makes quick work of the beginning of the colonies of these lice. They are very subject to any form of nicotine, and in greenhouses are destroyed by burning tobacco stems. In the open, control is easily accomplished by using commercial nicotine sulphate, known as "Black-leaf 40," at the rate of one part to eight hundred parts of water, to which is added a small amount of soap solution to make the liquid stick and spread better. For small gardens it is sufficient to use a teaspoonful of the "Black-leaf 40" in two gallons of water, adding about one ounce of soap. It has also been found that a strong soap solution itself will almost completely eradicate these aphides if the spraying is done with some thoroughness, care being taken to wet all of the lice. Tobacco dust, applied when the plants are moist, will kill all the aphides it touches.

There are three mean slugs that attack roses, the first being the American Rose Slug (*Endelomyia rosae* Harris), widely distributed throughout the eastern United States, and par-

ticularly abundant in the northern or more intensely rose-cultivated parts of this land. The parent is a four-winged fly which does its work unnoticed soon after the leaves open. The eggs deposited by the female hatch in ten days to two weeks, and the young slugs feeding at night skeletonize the upper surface of the leaves. They are unpleasant-looking little greenish animals, like miniature caterpillars.

The Bristly Rose Slug (*Cladius pectinicornis* Fourcroy) does its worst work in the southern part of the eastern United States. Produced in the same fashion as the one first named, the slugs quite soon follow the laying of the eggs, and not only feed on the upper surface of the leaves, but as they get stronger, eat out large irregular holes in the edges. The mature slug or larva is about three fifths of an inch long, yellowish or greenish in colour, and somewhat bristly. This slug is dangerous because it has three or four broods during the season.

The Coiled Rose Slug (*Emphytus cinctus* Linnæus) is larger than either of the two above mentioned, and more voracious, for the larvæ devour the entire surface of the leaf, feeding along the edge with the tip of the body coiled

beneath it. When mature the larva is about three-fourths inch in length. There are two broods of this pest, and it lives over, if uncontrolled, by hibernation in the pith of a dead rose branch or some near-by plant.

Controlling rose slugs—A strong stream of water is efficacious also for these pests, and they may likewise be disposed of by the use of lead arsenate, which can be dissolved in water at the rate of one ounce to one and a half gallons, and thoroughly sprayed on the plants. Fresh hellebore powder is also effective on these slugs, either stirred into water at the rate of one ounce to three gallons of water, or dusted on the foliage dry, diluted preferably with double its weight of powdered plaster or cheap flour. The previously mentioned tobacco extract, "Black-leaf 40," will destroy these slugs. Powdered tobacco, now easily obtainable, likewise terminates their activities. Further, the control of mildew and black-spot later proposed usually takes care of all of the slugs.

The Rose Leaf-Hopper (*Typhlocyba rosae* Linnæus) injures the leaves of rose bushes as it feeds on the under side of the leaves. It is small, nearly white, and very active. It fre-

quently destroys the leaves through its feeding activities. If not controlled it hibernates through eggs inserted in the bark on rose bushes, ready for trouble the next season.

The leaf-hopper can be disposed of in the same fashion as the aphides and slugs above mentioned.

The Rose Leaf-Roller (*Archips rosaceana* Harris) is more of a greenhouse pest than an outdoor pest. It produces blackheaded olive-green caterpillars which feed on the leaves and blossoms, rolling them together into a web with fine silken threads.

Control—The arsenate of lead spray, if used early enough, will provide against this pest, but when it does develop the spraying should be supplemented by hand-picking.

The Rose Bug, or June Bug, or Rose Chafer (*Macrodactylus subspinosus* Fabricius), is by all means the meanest, most persistent, and bothersome insect related to roses in America. It is a beetle about one half inch in length, grayish brown in colour, with long, ungainly legs. One brood emerges through a period of sometimes several weeks, just when the blossoms and leaves of rose bushes are beginning to

be pleasant to the sight, and often destroys the bloom, preferring the lighter coloured roses. Fortunately, the heavier soils are unfavourable for hibernation of this wretched bug, which prefers sandy regions, particularly near waste grass lands or weed-infested areas. The larvæ become mature by November, descending then to about a foot in depth and spending the winter curled up in oval earthen cells. Their transformation into the nasty beetle which is their destructive form occurs the following spring, and the pest is serious to crops as well as to roses.

Control—The rose bug is a hard citizen to discourage. Where the garden is surrounded by other gardens intensively cultivated, it is hopeful to hand-pick them, using a tin pail of water on the surface of which a little kerosene has been poured, and into which they are dropped or shaken. The best time to get at them is early in the morning, when they are a little less active, but any time is an "open" time for killing a rose bug! Arsenate of lead mixed with molasses or glucose will sometimes get them, because they will eat it for the sweet, and eventually die. A proprietary insecticide known as "Melrosine," if used often enough to

catch the successive crops of the brood, has proved efficacious in some sections. Persistence, keeping in mind the fact that each female beetle destroyed shuts off between thirty and forty eggs for next year, is the best way eventually to destroy this pest.

The Rose Midge (*Neocerata rhodophaga* Coquillett) is a greenhouse rose pest, and needs, therefore, merely to be mentioned here. It has been successfully controlled in greenhouses through the free use of nicotine preparations, including a half-inch layer of green tobacco stems thoroughly covering the ground in which the roses grow.

The Rose Scale (*Aulacaspis rosae* Bouche) is a whitish unpleasant scale found on old stems, particularly of the stronger-growing roses. Badly infested rose bushes seem as if they had been whitewashed, and naturally the scale weakens the plants.

Control—Spraying the rose bushes with commercial lime-sulphur solution in the proportion of one to nine, *in the winter* or in the spring *before* any growth starts, will kill this scale, though in some cases it will be better to cut off and burn the worst infested stems.

The Rose Curculio (*Rhynchites bicolor* Fabricius) is a bright red snout-beetle having black legs and snout, and being about a quarter inch in length. It is widely distributed throughout the United States, and has the unpleasant habit of eating holes with its beak in the unopened buds of roses, while it also sometimes injures leaves. There is but one brood annually.

Control—Hand-picking into water covered with kerosene is the best control in small gardens, though lead arsenate in the proportion of one ounce to one and one half gallons of water, applied at their first appearance, will also dispose of them.

The Rose Slug-Caterpillar (*Euclea indeterminа* Boisduval) does harm particularly in the Southern States. It is of striking appearance because of its orange colour, and it is covered with tufts of spines which tend to irritate the bare hand used in picking them from the bushes.

Control—Hand-picking with gloves is the best control, though in large plantings the lead arsenate spray above recommended will suffice.

It should be generally noted that the control

of all these insects is similar and simple, save only the hateful June bug. It should be noted further that the treatment for black-spot and mildew about to be proposed may readily be so conducted as to take care of all the rose insects (always excepting the rose bug) in one prescription, as repeatedly applied.

ROSE DISEASES

Powdery Mildew is a familiar disease in the United States. It is a fungus, *Sphaerotheca pannosa* (Wallr.) Lev. var. *rosae* Wor. It shows in grayish or whitish spots on the young leaves and shoots, and indeed on the unopened rose buds. The leaves, stems, and buds are deformed, and eventually destroyed.

Some roses are much more susceptible to mildew than others, the well-known Crimson Rambler being perhaps the worst offender. Positions where there is poor air-drainage, or where dampness collects, seem particularly to favour the formation of mildew. The disease progresses through the spores, which are blown about by the slightest current of air. It is, however, hopeful for the aspiring rose-grower to inform him that powdery mildew is wholly

Climbing Rose on cedar post. In this semi-naturalistic manner the multitude of Climbing Roses afford rich material for garden embellishment

outside of the leaf, and may therefore actually be removed by proper treatment.

Mildew seems particularly to affect rose plants purchased in full growth in the spring, which not infrequently show the shock of change of condition and temperature in its development.

Control—It has long been known that any form of sulphur used as a fungicide will control the powdery mildew of the rose. The best form here recommended is that which is mentioned in the combined mixture described later for the treatment of black-spot, to which the inquiring amateur is referred.

Black-spot is the most definite obstacle to rose success in the United States. It occurs everywhere that roses are found, and frequently weakens and eventually destroys the plants because they are defoliated repeatedly through its adverse action. It shows in black spots on leaves and petioles, by the leaves yellowing and easily detaching from the plant. The spots are more or less circular, and sometimes are a half-inch or more in diameter, with irregularly fringed margins. They show only on the upper surface of the leaves, and the disease tends to

be more serious during late summer and autumn, in the presence of cool nights and heavy dews. It should here be noted and remembered that black-spot lives through its mycelium *within* the structure of the leaf, and a leaf once attacked by it is of no further value to the plant, needing to be removed and burned, so that the fungus, which lives over the winter in dead leaves, on the ground, or clinging to the plant, may be destroyed.

Black-spot can be controlled, as will hereafter be noted, but it should also be noted that it cannot be cured as can mildew. The affected leaf can never again function as a leaf, though it may readily carry over the disease to do further damage another year. Again it is repeated that fallen yellowed leaves and stems need to be constantly gathered and burned, and that the ground in which the rose plants grow be kept clean and clear.

Control—Much experimentation has resulted in providing a treatment, simply and easily handled, which does usually control black-spot by preventing it in most cases. The wise amateur will vigilantly watch his plants and immediately pull off and burn a yellowed leaf, or

pick up a dropped leaf, from the very beginning of the season. He will also try the hard thing of properly dosing his plants with the protective application to be described, just when it seems most outrageous to interfere with the beauty of the rich young foliage.

Bordeaux mixture, commercially obtainable ready to use, is effective for controlling black-spot. Ammoniacal copper carbonate also is equally as effective. Both these substances, however, disagreeably mark the foliage, wherefore the application worked out by Dr. L. M. Massey, of Cornell University, at the instance of the American Rose Society, and first published in its *Annual* for 1918, is here recommended.

It is to take nine parts dusting sulphur with one part of dry powdered lead arsenate, and when these are intimately mixed, to dust them thoroughly on the rose foliage before any evidence of black-spot or mildew appears. It should be noted that *dusting* sulphur is recommended, not the commercial "flowers of sulphur," but a much more finely ground article which blows readily in the air, and if used when the dew is on, adheres to the foliage, reaching under the leaves as well as on top.

The use is urged, therefore, of the sulphur-arsenate dusting mixture, beginning when the first rose foliage is developed and continuing in successive applications every two or three weeks throughout the season. If there should begin to be evidence of either black-spot or mildew, the application should be more frequent, combined always with the removal of all affected foliage on which black-spot appears.

A simple powder-gun, costing about one dollar, can readily be obtained of the same source from which the proper chemicals may be had.

It should be noted that certain roses are much more susceptible to black-spot than others. The Pernetiana class of Hybrid Teas shows this peculiarity. It is wise, therefore, to plant roses of the Pernetiana type together, so that they may be the more effectively controlled.

It should be noted further that with the admixture of one part of powdered tobacco the dust above described will take care of all the insects that bother the rose, save only the hated rose bug, or June bug.

It is proper here to state that the foregoing account of the insects and diseases that beset roses, with suggestions for their control, are

adapted from the exhaustive study of the subject printed in the *American Rose Annual* for 1922, as made by Dr. L. M. Massey, the plant pathologist of Cornell University, at the request of the American Rose Society. The interested amateur is commended to a relationship with this Society, which brings constant access to advice concerning all rose troubles, with free consultation of authorities who keep posted on rose troubles as well as rose advances.

CHAPTER V

The Rosarian's Calendar

March 15th.—Finish the pruning of hardy varieties already planted.

March 25th.—Plant new hardy roses, pruning new plants rather more severely than those of the same varieties already established.

April 15th.—Finish the pruning of tender varieties, as far as possible, without uncovering completely. Give to all the beds and to any neighbouring pear trees, grape-vines, or other plants subject to fungoid troubles, a good spraying of Bordeaux mixture as a preventive.

April 20th-25th.—Uncover tender varieties. Plant any new ones received, giving these slight protection of loose hay for a short time over the tops, and a rather severe pruning.

End of April.—Roses generally in leaf. Give a thorough protective treatment of the sulphur-

arsenate dust as recommended on page 59, adding tobacco dust to control aphis.

May 20th.—Buds forming. Give a second treatment as above.

May 25th.—Earliest roses in bloom, including Hugonis, Scotch roses, Persian Yellow, etc. Apply liquid manure to all the H. P's. and H. T.'s.

June 5th.—Hybrid Perpetual roses in full glory. Watch for rose bugs; pick them into kerosene or water, or if very plenty, use the protective spray mentioned on page 53.

June 10th.—Another sulphur-arsenate-tobacco dusting. Keep after rose bugs. Stir into ground around each plant a trowelful of half bone dust and half powdered sheep manure.

June 20th.—Hybrid Teas in full bloom. Continue vigilance for insects, mildew, and black-spot.

July 1st.—Another sulphur-arsenate dusting. Hybrid Perpetuals decreasing. Hybrid Teas also decreasing.

July 10th.—Rose bugs gone. Continue dusting for mildew and black-spot; pick up and burn all fallen leaves; keep ground thoroughly cultivated.

July 20th.—Hybrid Teas and Teas decreasing. Carefully cultivate and then mulch beds with peat moss or similar substance.

August 10th.—General overlooking to get any black-spotted leaves, and to check any insects.

August 30th.—Hybrid Teas and Teas, second bloom begins, lasting until frost.

September 15th.—Second bloom of Hybrid Perpetuals begins, but usually it is not very plentiful.

October 15th.—Prepare new beds for the next spring planting. Rigidly destroy by burning any leaves that show black-spot; dust the remaining foliage.

November 15th.—Begin protection after first freezing of the ground.

November 30th, or after a decided freeze, cover up for winter, tying down long canes to prevent winter winds from whipping them about.

CHAPTER VI

Types and Races

A broad division of roses into two great natural classes may be made: (1) summer flowering and (2) summer and autumn flowering. While certain individual roses may be picked out as typifying the many groups into which these classes are again subdivided, such minute classification is not a practical one nowadays. The border lines have been overlapped in all directions so that for garden purposes a broader significance can be given to many of the old-time larger groups, ignoring the finer distinctions of the hair-splitting rosarians. For the average amateur, an acquaintance with the Hybrid Tea, Tea, Hybrid Perpetual, Polyantha, and Rugosa, with also the Wichuraiana and Multiflora hardy climbers, is all that is necessary, plus a little attention to certain of the species roses, and the hybrids, such as Hugonis, spinosissima, and the Briers.

It will be found quite difficult to separate the

groups, inasmuch as continuous cross-breeding has inextricably mingled the various primary strains.

FEATURES OF THE MORE IMPORTANT GROUPS

The analysis which follows is in alphabetical order, not in order of importance.

BANKSIA—*Habit:* Climbing, slender; rapid grower. *Foliage:* Dark green, glossy, often only three leaflets. *Prickles:* None. *Flowers:* Small (one inch across) in umbels, once in the season—May. *Culture:* In open air in the South and in California, only in rich soil; in greenhouses in the North. Prune very sparingly. *Type:* Yellow (scented like violets).

BENGAL OR CHINA (The so-called "Monthly" Rose)—*Habit:* Moderate, branching growth two to four feet high. *Foliage:* Glaucous green, dark above, pale beneath, three to seven leaflets. *Prickles:* Brownish red. *Flowers:* Profuse when well grown. Not fragrant. Small. Produced all summer. *Culture:* Rich soil. Prune close. *Type:* Agrippina. (Almost wholly superseded by Hybrid Tea forms such as Gruss an Teplitz and Ecarlate.)

BOURBON—*Habit:* Vigorous. Intermediate

between Bengal and Damask, with great range. *Foliage:* Dark, lustrous, seven leaflets. *Prickles:* Various. *Flowers:* Light shades, generally with some purple, and produced in clusters all summer (some few do not bloom freely in autumn). *Culture:* Rich soil. Prune closely. Moderately hardy. *Type:* Hermosa.

Briers—Austrian, Scotch, Sweet, Penzance. *Habit:* Short jointed, branching freely, growing to from three to five feet in height. *Foliage:* Small, spiny, fragrant in Sweetbrier. *Prickles:* Abundant, except in alpine. *Flowers:* Small. Yellow and copper in Austrian. Short lived. Bloom once. *Culture:* Scotch grows well in sandy soil. Sweetbriers like a heavy rich soil. Prune by removing some of the oldest shoots. All are hardy. Do not respond greatly to high cultivation. *Type:* Rosa spinosissima.

Austrian Briers have chocolate-brown bark. Demand dry soil. Flowers, yellow to copper. *Type:* Harison's Yellow.

Scotch Roses are excessively spiny and sucker freely. They form rounded low bushes.

Sweetbriers have fragrant foliage and decorative fruits. *Flowers:* Light coloured and small.

Penzance Hybrid Sweetbriers are hybrids from

the Sweetbrier in many varieties. Lord Penzance is the prettiest in colour. They should have a high trellis and be at least eight feet apart, or should be allowed to make masses without a trellis. To prune, shorten back the over-vigorous growth and remove some of the oldest shoots.

DAMASK AND FRENCH—*Habit:* Robust green shoots, vigorous grower. *Foliage:* Five to seven leaflets, downy, coriaceous. Pale green in Damask, dark green in French. *Prickles:* Very numerous in Damask; slightly fewer in French. *Flowers:* Generally flat. Those of French Rose bleach in sunlight and develop perfume in dried petals. Damask Rose loses scent on drying. Flower once. *Culture:* Suited to any soil, very hardy. Prune by thinning out the abundant shoots. Generally superseded by hybrids of other groups.

Hybrid French are less robust, with smoother, short-jointed wood.

Hybrid China, derived from French, Provence, Noisette, or Bourbon. More diffuse growth, foliage shining, enduring late in the season. Very hardy, adapted to poor soils. Prune but slightly. *Type:* Mme. Plantier.

Evergreen (Sempervirens)—*Habit:* Climbing. Very vigorous. Reddish bark. *Foliage:* Dark green, retained late in the season. Seven leaflets, glabrous. *Prickles:* Hooked. *Flowers:* Scanty in corymbs, once in June. *Culture:* Hardy. Prune by cutting out entirely shoots that need thinning. Is now virtually obsolete, being superseded by the Wichuraiana and the Multiflora hardy climbers.

Hybrid Perpetual—For a generation and until the Hybrid Teas were evolved in the attempts to improve the Hybrid Perpetuals these were the most important group for general garden cultivation. They yet provide dependable roses where the others are not hardy, and their burst of June bloom in great flowers is unexcelled. For practical purposes of the amateur all the sundry roses which bloom once in the summer and again more or less intermittently in the autumn are now included here. *Habit:* Various. Generally stiff, upright, sometimes inclined to pendulous. *Foliage:* Dull green, wrinkled, not shiny. *Prickles:* Various, generally strong and fairly abundant. *Flowers:* Of all types, partaking of Tea, Damask, French, Bourbon, etc., produced in summer and autumn.

Culture: Good garden soil, rich and deep, inclined to heavy. Prune by cutting back, according to habit; if very vigorous, prune less severely than if weak, as heavy pruning tends too much to wood production. *Examples:* Mme. Gabriel Luizet, Gen. Jacqueminot, Frau Karl Druschki. (The last-named is a true Hybrid Perpetual, though it blooms far more frequently than the average.)

Hybrid Tea—The most popular roses for all-round cultivation in the garden and under glass. *Habit:* Intermediate between that of the Tea and Hybrid Perpetual. *Foliage:* Rougher than in the Teas and slightly wrinkled; not so rough as in the Hybrid Perpetuals. *Prickles:* Generally large and strong, though not very abundant. Occasionally very few. *Flowers:* Of various types, generally well formed, with a large number of petals and an elongated bud; usually fragrant. Blooms throughout the season on the new growth of the current year. *Culture:* Same as for the Teas, except that as a class they require less protection. *Examples:* Killarney, Gruss an Teplitz, Radiance.

Multiflora Hybrids (The so-called Rambler roses)—*Habit:* Climbing or recurving; very

vigorous, green shoots. *Foliage:* Bright green, slightly hairy, serrate, nine leaflets. *Prickles:* Abundant and strong. *Flowers:* In pyramidal corymbs, once in the season. *Culture:* Good, rich garden soil. Prune by cutting out old canes that have flowered; prune young canes only for shaping. *Type:* Crimson Rambler, Tausendschön. This group has been freely hybridized with other climbing roses and with many Tea and Hybrid Tea roses, and is in consequence very uncertainly defined. It includes many very admirable and beautiful hardy climbing roses.

Musk and Noisette—*Habit:* Slender shoots, half climbing, six feet in height. *Foliage:* Shiny, usually pubescent beneath, five to seven leaflets. *Prickles:* Moderate in quantity, hooked, reddish. *Flowers*: Pale colours, including the best yellows, very fragrant, generally in clusters. *Culture:* Good garden soil; requires slight protection in winter. Treated generally as the Teas; not hardy North. Prune moderately. *Type:* Cloth of Gold (Chromatella), as grown in California or Florida. The famous Maréchal Neil is included in the Noisette class.

POLYANTHA—The miscalled "Baby Ramblers." *Habit:* Dwarf, bushy, compact, seldom growing over eighteen to twenty-four inches. *Foliage:* Predominantly of the Multiflora character. *Flowers:* In pyramidal corymbs, lasting long, and produced throughout the season. *Culture:* Needs rich soil and intensive culture. Prune by occasional trimming out of the older canes and by cautious shaping of the rounded head. This group is quite modern, and might more truly be called everblooming than any other. They are closely related to the Multiflora type, and seem to be, in fact, hybrids of *R. multiflora carnea* and *R. multiflora minima* with other modern varieties. The Polyanthas are of great value for garden use. *Examples:* Orleans, Tip-Top, Marie Pavic.

PRAIRIE—*Habit:* Climbing, rapid growing. *Foliage:* Five to seven leaflets, dark green, rough, large. *Prickles:* Stout and moderately numerous. *Flowers:* In clusters, once, late in the season. *Culture:* Any garden soil. The Prairie Roses thrive over a great extent of territory. They are now superseded by the modern climbing hybrids with flowers of greater variety in colour and form. Prune but slightly, cut-

Pillar Roses allowed to grow with natural freedom are suitable accent points in the flower garden and can be used effectively in combination with bush Roses

ting out old canes as necessary. *Type:* Baltimore Belle.

PROVENCE—*Habit:* Branching, pendulous and straggling. *Foliage:* Large, broad, wrinkled, deeply serrate. Seven leaflets, generally. *Prickles:* Sometimes fine and straight, sometimes coarse and hooked. *Flowers:* Large, globular, with a great number of petals. Very fragrant. Blooms once only; now seldom seen and but rarely obtainable. *Culture:* Rich soil; prune closely, unless very vigorous. *Type:* the old Centifolia or "Cabbage" Rose.

Sub-varieties: The Moss Roses are in the Provence class. Fragrant both in flower and in the peculiar glands which make up the "moss." *Examples:* Blanche Moreau, Cristata.

RUGOSA—*Habit:* Dense bushes, short jointed. *Foliage:* Shiny, much wrinkled, very dark green, remarkably free from insect pests. *Prickles:* Numerous and stout, but small. *Flowers:* Single or double, produced intermittently throughout the season. Pink or white, followed by handsome fruits. *Culture:* Does well in any garden soil and is well adapted for seaside planting. Prune by cutting out nearly all old wood and shortening the remainder. *Examples:*

Rosa rugosa, Red and White; Mme. Georges Bruant, Conrad F. Meyer, and other Hybrid Rugosas. A late class shows a cross between Rugosa and the Polyanthas in F. J. Grootendorst, described as "a Rugosa rose with the flowers of a red carnation."

SPECIES—*Habit:* Varied with the characters of the particular native or natural species. Always hardy where found; blooming but once and usually with single flowers in white or shades of pink. Valuable in borders or shrubberies and for roadside and protective planting. *Examples:* Rugosa, Wichuraiana, spinosissima, lucida, Hugonis, Moyesi, setigera, rubiginosa.

TEA—*Habit:* Slender growing bushes, branching freely. Bark smooth, shiny. *Foliage:* Smooth, shiny, never rough or hairy. Young growths often copper coloured. *Prickles:* Moderately abundant, or almost absent in some varieties. *Flowers:* In all the colours of roses: of varied form, often with long and pointed buds; fragrant. Produced on the new wood as it forms throughout the entire season—a really perpetual class. *Culture:* Very rich soil, thoroughly well drained. Protection in winter is necessary except in the real South or in California. In

the climate of the East and North the Teas are hardy only when protected. Prune by cutting back hard. *Examples:* Alexander Hill Gray, Maman Cochet.

WICHURAIANA HYBRIDS—*Habit:* Climbing usually, rarely creeping as in the type; of great vigour. *Foliage:* Varying with the pollen parent, but usually large, with small leaflets, deep green, glossy, with seven to nine leaflets. *Flowers:* Large and small, the former equalling in size and beauty the best Hybrid Teas and the latter in the way of the Multiflora hybrids; colour from white and yellow to deepest pink and carmine; sometimes slightly fragrant. *Culture:* Grows in any good soil, and in all but shaded situations. Prune out the older canes after flowering, and remove new growth that overcrowds. This group is of great importance, and includes the best climbing roses of the day. *Examples:* Dr. W. Van Fleet, Lady Gay, Climbing American Beauty, American Pillar.

WHEN THEY BLOOM

The Hybrid Perpetual varieties have one great period of bloom, from about June 5th to July 5th. If judiciously cut back after blooming,

some additional flowers may be expected in mid-autumn, especially on some varieties as Frau Karl Druschki.

The Provence and Damask Roses bloom only once, usually between June 5th and July 5th.

The Teas, the Hybrid Teas, and the Bourbons have two distinct periods of bloom, attending their new growth, namely, from early June to mid-July and again from the beginning of September until cut down by frost. Some varieties bloom all season as they grow if kept in health.

The China (or Bengal) and Polyantha roses bloom off and on at intervals throughout the season. Few of them attain to any great size of flower, and most of the Polyanthas bloom in clusters of miniature roses, which last long on the plant. But both are very desirable to show continual bloom, and no garden of any size should be without them.

The Rugosas and their hybrids bloom in early summer, and less abundantly throughout the growing season. (The hybrid F. J. Grootendorst blooms continually.) Owing to their very bushy and heavy growth, they should be in separate beds. Four feet between plants will be none too much.

The Multiflora and the Wichuraiana hybrid climbers bloom only in the great June burst of roses, though a judicious selection of varieties will give full six weeks of bloom.

There are Climbing Teas that bloom about as their type, though usually less abundantly.

The species roses bloom but once. The Chinese Hugonis comes often in May, and the species available in America will cover two months of bloom. Spinosissima, especially the variety altaica, blooms early in June.

Polyantha roses bloom throughout the growing season, for the most part as above noted.

THE HARDIEST RACES

The Hybrid Perpetuals and the Rugosas are absolutely hardy in the latitude of New York and for some distance north, and require no protection. Polyanthas do not need much, and indeed usually get along well enough without any overcoat. The Species are generally hardy; Hugonis, for example, has endured zero temperatures unharmed. If the owner is satisfied with a single month of bloom and cannot devote the necessary time and attention to protecting other varieties, then all the roses should be

selected from among the Hybrid Perpetuals, the Rugosas, and the hardy climbers.

In any case, start with the very best field-grown plants that can be found. Inferior stock is dear at any price.

THE MODERN HARDY CLIMBING ROSES

A list of varieties made for an earlier edition of this book included less than a score of commended varieties of climbing roses, some of which were confessedly not hardy. The attention paid to hardy climbing roses after Crimson Rambler became firmly established in the United States, and the delightful hybrids resulting from the free crossing of various Hybrid Tea and other large-flowered roses with Wichuraiana and Multiflora, often in the second and third generations, have made the list of available hardy climbers a long and interesting one. One contemporary catalogue lists 108 varieties of Wichuraiana and Multiflora parentage, independent of the many Climbing Hybrid Teas, Noisettes, etc., also available. It is probably within the truth to say that well on toward two hundred distinct varieties of vigor-

ous-growing climbing roses that are hardy in some part of the United States are in commerce at this time.

The early climbers rested on the Prairie Rose type, until the wonderful Chinese Rose first called "Engineer" when sent into England reappeared as "Crimson Rambler" and was extensively disseminated in the United States. Indeed, it was too extensively disseminated, because its presence in great vigour in some places has kept out many better roses.

The hardy climbers of the day furnish a superb resource, not only as climbers but as attractive objects trained on pillars, as desirable items in the hardy border among shrubs if given a little attention, and as effective fence covers and embankment protections. In the latter relation they have assumed a peculiar efficiency, for along the New York, New Haven and Hartford Railroad, as well as along the Pennsylvania Railroad, miles of sloping embankments are held in place through the hardy roses that are there entrenched, providing in bloom time an extremely beautiful display, and all the rest of the season a rich showing of foliage far superior to that possible with ordinary sward,

even if it were practicable to keep the latter in order, as it is not.

These modern hardy climbers may broadly be divided into two sections, independent of the additional section not definitely hardy over the larger part of the territory, generally called Climbing Hybrid Teas.

The Multiflora type, characterized by the crossing of various roses with *Rosa multiflora*, is most in evidence in Crimson Rambler, though a far finer representative is the superb rose Tausendschön. Generally the Multiflora climbers tend to flower in clusters, and to show in these great clusters blooms of relatively smaller size and in all shades from deep crimson to white, without the establishment as yet of a definite yellow.

Even the Polyantha form of *Rosa multiflora* has ventured into the climbing class, as evidenced in the notable rose, Climbing Orleans, which carries the floriferous disposition of the Polyantha class into a rampant upright growth altogether pleasing in foliage and in flower.

The greater advance seems to have been made in the use of the Wichuraiana base, carrying with it mildew-resistant foliage tending to be

glossy and richly green, and an admirable habit of large blooms, whether the hybrid be primary or secondary. Perhaps the topnotch of quality in this section is seen in the rose Dr. W. Van Fleet, a hybrid between *Rosa Wichuraiana* and the Hybrid Tea Rose Souvenir du Président Carnot. It provides, together with its tremendously vigorous habit, able often to send up shoots fifteen to twenty feet long in a single season, blooms of Tea rose separateness and delicacy abundantly produced in its one blooming period.

The same class has brought in fragrance in some cases, and all the colours known to the rose, even including definite yellow tones and the beginning of the copper hues characteristic of the Austrian Brier origin of the Pernetiana Hybrid Teas.

The development has likewise produced wonderful single-flowered roses among the hardy climbers, chief of which, perhaps, is American Pillar, a cross between *R. Wichuraiana* and *R. setigera*. These single roses are both bold and delicate, both brilliant and refined, in the various varieties ranging through a lovely colour gamut from crimson to white.

There has also been introduced a wonderful scarlet strain through Paul's Scarlet Climber, and a deeper scarlet through Dr. Huey, the latter an American hybrid bringing in the colour of Gruss an Teplitz through a second-generation Wichuraiana cross.

It is not deemed appropriate here to list these modern hardy climbers, because the varieties change and constantly improve through the attention of American and European rosarians. Current rose catalogues and the *Annuals* of the American Rose Society will readily inform the inquiring rosarian of the best varieties from year to year, and of the advances in this notably interesting and important class.

It is here in point to suggest uses for these hardy climbing roses, in addition to their primary use of covering trellises and fences, of clambering over doorways and arches, and of making out of an old tree a beacon of flaming beauty in the blooming season.

The hardy climbers, or most of them, may readily be trained as pillars of any height within very easy reach, usually less than seven or eight feet. So treated they are annually renewed by cutting away all old growth and

choosing four or five or even more of the new shoots for the succeeding season's bloom.

Another use of these hardy climbers is to plant them in the edge of a shrub border, tying up the shoots in fan shape for a year or two, and as they grow twining them in on each other until there results a graceful balloon-formed plant able to sustain itself, richly decorative in foliage all the growing year, and notably beautiful in bloom.

Sometimes these hardy climbers have been worked as standard or tree roses, in which form they give an effective head of bloom, but once in the season it is true, yet extremely attractive then.

Mention has been made heretofore of the advantage of these hardy climbers for covering banks. They may easily be adapted to this use through planting in pockets along the slope to be protected; and in large use, where miles of territory are to be covered, success has followed the putting into each pocket, in the late fall or early winter, of a half-dozen or more cuttings of mature wood from the desired varieties, enough of which will root and live eventually to cover the slope.

CHAPTER VII

Roses for Special Purposes

Abbreviations—(B.) Bourbon; (D.) Damask; (F.) French or Gallica; (HB.) Hybrid Bourbon; (HC.) Hybrid China; (HN.) Hybrid Noisette; (HP.) Hybrid Perpetual, including some of the hybrid Bourbons; (H T.) Hybrid Tea; (M.) Multiflora; (N.) Noisette; (P.) Prairie (roses derived from R. setigera); (RH.) Rambler hybrids (Crimson Rambler, one parent); (T.) Tea-scented; (WH.) Wichuraiana hybrid.

We can have roses almost anywhere. It is even possible to have them in poor sandy soil, but it is not possible to have the best double varieties without the best soil and the best care. There can be roses on walls, on trellises, on tree trunks, on arbours, in the city garden, at the seashore, and about the mountain home where your summer is enjoyed. There are roses that bloom in the summer, others that make the garden glow in autumn, and some that are so lavish with flowers that they repeat their gifts of colour and fragrance through the season. As a whole, the rose family asks for a

deep, rich, and heavy soil; but the Burnet, or Scotch, Roses will thrive in sand; so will the Memorial, or Wichuraiana—and there are a score of excellent varieties derived from this which make rampant growth with almost no soil at all, and seem not to ask much care.

We have been so long trained to think and speak of roses as only for their individual flowers that whole groups and families of kinds that do not make a great display of specimen individual flowers have been almost lost to the sight of the ordinary individual. It is not true that all roses are ugly plants, to be regarded only as the means of producing glorious blooms, and that therefore their proper place is in an out-of-the-way corner where they will never be seen. Roses there are which are as good material for the garden picture as any other of the flowering shrubs. Let us have roses about our homes, and in every garden. If there is no other possibility, plant a climber to ramble over the piazza and show its rose buds about the window frame. Elsewhere have walks of roses, arbours of roses, pillars of roses, roses climbing up, and roses in wreaths hanging down, and, indeed, roses everywhere. Grow them for their colour,

for their fragrance, and—because they are roses!

How to do this? Select the proper varieties of the proper groups, and, above all, don't put up a fight against the inherent nature of particular plants, for it will be a losing struggle, and there is no lasting pleasure in that sort of gardening. Certain conceits of rose culture demand special methods of setting about the desired end. Unless you are wonderfully favoured, standards are not possible under the usual method of permanent planting, and it then becomes necessary to take them into trenches each winter. Again, climate controls the rose grower; a garden of Teas and other of the tender roses which is an easy matter in the South and on the Pacific Coast is a more difficult feat of gardening in the East and the North. The gardener has to make his garden from the best possibilities, and the more this is realized the less apparent is the effort. American gardens have at hand a rich mass of available material for rose effects without a slavish adherence to the better known garden roses of the Hybrid Perpetual and Hybrid Tea or pure Tea types. Even the native species are of impor-

tance, especially for shrubbery effects. What better than the bright red bark of Rosa blanda, massed, in the winter landscape! The Multiflora group, as represented by the once ubiquitous Crimson Rambler, has opened the eyes of thousands of suburban home makers to the possibilities of roses other than the ordinary. It is realized that there are roses for many purposes, and the Crimson Rambler itself has been the forerunner of a large and most useful race of hybrids.

The Wichuraiana hybrids, too, have entered a vital relation to the American rose garden. These two roses must be regarded reverently by the progressive rosarian on account of what has been accomplished through their acceptance as garden plants. They have helped the million to learn that there are roses and roses —and roses; that there are varieties for all kinds of purposes, and that a rose garden is a possibility anywhere if there are a foot or two of soil and a few rays of sunshine.

What everybody wants, and what we shall never get, is a perfect double rose that is fragrant and borne in great profusion on a bush that is beautiful even when out of bloom, and which will grow without care, is free from insects and dis-

eases, and will not die in the winter. There are roses in Europe that come within a mile of this ideal, but rose culture in America is still in its infancy. Our climate is fundamentally different from that of Europe, and the roses of the future must be hybrids of the best double roses of the Old World with the hardy roses of Japan, which are better adapted for plant-breeding purposes than the wild rose of the northeastern United States.

The "common" roses that are grown everywhere in the United States are the Hybrid Teas, despite their lack of hardiness in certain rose-loving sections, the Hybrid Perpetuals that give us the great June bloom show, and the hardy climbers, both of Wichuraiana and Multiflora parentage, that give us dooryard beauty as well as a wonderful covering capacity for trellis, fence, stone-pile, and slope.

The lovely Tea rose has steadily lost ground to its stronger sister, the Hybrid Tea, giving equal beauty and fragrance with greater vigour and adaptability. Yet the Teas are not at all to be overlooked or neglected, even if the efforts of the great European rosarians are mostly put upon its hybrid relative.

HOW TO PLANT AND PRUNE

A dormant budded Caroline Testout on Manetti stock. *A*—Point where bud was inserted. *B*—Surface of ground, showing how deep to plant. *C*—About where plant should be cut back in spring. Always cut just above a bud pointing outward

One reason for the growth in popularity of the Hybrid Teas is the entrance into its family of a colour previously out of touch in the Teas. The genius of a great French hybridizer, Monsieur Jules Pernet-Ducher, has given us the definite yellow and the lovely copper hues of the Austrian Brier class. Some writers class these roses as Pernetianas, in honour of the originator, but inasmuch as nearly all the old strains had already entered into the Hybrid Teas, the addition of one not previously used does not seem to justify the creation of a new class.

These roses of M. Pernet-Ducher, and those following as originated by all the great English, German, French, and American rosarians, are distinguished by blooms of exquisite colouration through all the range of yellow, apricot, salmon, copper, and the intermediate hues. They are usually of vigorous habit, and have heavy and glossy foliage, which, alas, seems peculiarly susceptible to the worst foe to American prosperity, the fungous disease called "black-spot." (On another page in this book is given a convenient preventive treatment for this trouble, so that no real rose-lover needs to be deprived of the rich hues of the Pernetianas.)

It is but proper to mention certain rose limitations here, and to admit that as yet one cannot have the best roses and the best bush at the same time. The pruning and general cultivation are entirely different. The two purposes cannot be entirely reconciled. If you want the best double roses, your rose bushes are sure to be unsightly when they are out of bloom. If you want a rose bush that will look well through the season you cannot have the best double flowers. If you want the individual flowers you must grow flowers—not plants—by pruning hard each year in the spring, cutting back almost to the ground. In this climate the standard roses should be grown on the Dog Rose stock, every plant dug up in the autumn, laid in a trench, and covered for the winter. The standard is of service only to relieve the level monotony of a formal rose garden. It does not give larger flowers.

In the lists for special purposes, which follow, the object has been to present selections of the best varieties suited to each case. The lists, in other words, are not exclusive, but suggestive, rather. The previously published statements of experienced growers have been freely

drawn from, and it is very interesting to observe how frequently certain varieties are named in widely separated parts of the country.

VARIETIES FOR A ROSE GARDEN (DR. HUEY'S LISTS)

All Hybrid Perpetual roses do not do well in America, and some favourites in England and Ireland are utterly worthless here. In order to discover the best for this climate, Dr. Robert Huey, of Philadelphia, Pa., has gone to considerable pains, and every Hybrid Perpetual in Dickson's catalogue has been thoroughly tested by garden cultivation. For this valuable and complete trial the thanks of all rosarians are due. The following varieties have all given good satisfaction:

White Roses, HP.

Merveille de Lyon
White Baroness
Frau Karl Druschki
Margaret Dickson
Mabel Morrison
Gloire Lyonnaise

The last is an HT but is a vigorous grower, blooms only in June, and should be planted with this class.

Pink Roses, HP.

Baroness Rothschild
George Arends
Her Majesty
Mme. Gabriel Luizet
Mrs. R. G. Sharman-Crawford
Mrs. John Laing
Paul Neyron
Suzanne Marie Rodocanachi

Crimson and Carmine Roses, HP.

Captain Hayward	General Jacqueminot
Duke of Edinburgh	J. B. Clark
Fisher Holmes	Ulrich Brunner

The best of the very dark roses is Prince Camille de Rohan.

Trellis Roses

Any of the modern hardy climbers hereafter mentioned may be trained on trellises to advantage, though some of them, such as American Pillar, Silver Moon, and Dr. W. Van Fleet, are so vigorous in growth that a large surface needs to be provided for their advantage. Certain lovely sorts of less rampant disposition are especially suitable for trellises of not more than eight feet in height. These are named below.

All the Climbing Hybrid Teas—which are simply more vigorous and less free-blooming forms of their bushy parents—are adaptable to trellises, but it must be remembered that they are not dependably hardy north of Philadelphia, needing beyond that range to be laid down and covered with earth or other protection as previously recommended. The leading sorts are:

Ards Rover (Cl. H P.)
Carmine Pillar
Climbing Étoile de France
Climbing Lady Ashtown
Climbing Maman Cochet
Climbing Ophelia
Climbing Sunburst
Climbing Wootton
Mrs. Robert Peary
Paul's Lemon Pillar
Reine Marie Henriette

The other trellis roses here commended include:

Alberic Barbier
Aunt Harriet
Aviateur Bleriot
Baroness van Ittersum
Climbing Orleans
Coronation
Dr. Huey
Emily Gray
Evergreen Gem
François Guillot
Gardenia
Ghislaine de Feligonde
Goldfinch
Gruss an Freundorf
Hiawatha
Leontine Gervais
Leuchtstern
Milky Way
Miss Helyett
Mrs. M. H. Walsh
Paul's Scarlet Climber
Purity
Purple East
Roserie
Tausendschön
White Dorothy

Any of these roses may also be grown as pillar roses, being in that use trained about a support of iron pipe or similar character from four to seven feet high. Four to eight shoots are each year allowed to grow to the top of the support, being then cut off, and each year, after blooming, renewed from the base. Paul's

Scarlet Climber, Dr. Huey, and Leuchtstern are particularly lovely when so treated.

Hybrid Teas

Without question the Hybrid Teas are the dominating roses of the civilized world to-day. With more than a thousand existing varieties, all introduced since La France and Cheshunt Hybrid began the race in 1867, and with more than a hundred new introductions from England, France, Germany, and the United States in each year, the Hybrid Teas are yet in the ascendant. The range of form and colour far exceeds that available in any other class, and the recurrent blooming habit further commends the class. As bushes it must be confessed that the Hybrid Teas are not in themselves ornamental, but this deficiency is overlooked when one takes in account the fragrant flowers in every hue of yellow and copper, pink and crimson, scarlet and light red, as well as white.

While many of the varieties are too closely similar to existent sorts, the Hybrid Teas include the sorts that are providing the roses for the gardens of America. Through the inquiries made of the country-wide membership of the

American Rose Society, the varieties that are generally dependable are coming to be known. These are those that do not require the care that a fancier gives, and are in consequence the best for the amateur to begin with. They include the following:

Columbia
Duchess of Wellington
General MacArthur
Gruss an Teplitz
Hoosier Beauty
Jonkheer J. L. Mock
Joseph Hill
Kaiserin Augusta Victoria
Killarney
Lady Alice Stanley
Lady Hillingdon (Tea)
Lady Ursula
La Tosca
Los Angeles
Mme. Caroline Testout
Mme. Edouard Herriot
Mme. Melanie Soupert
Mrs. Aaron Ward
Ophelia, and its sports
Radiance, and its sports; Red Radiance and Mrs. Charles Bell
Sunburst

Among these the two Radiances, Gruss an Teplitz, and Frau Karl Druschki can be depended upon as adaptable to at least three fourths of the United States, in which they will bloom acceptably.

ROSES FOR VACATION HOMES

If the vacation home is occupied toward the end of the summer rather than at the begin-

ning, plant about it those roses that particularly tend to flower in the autumn. Selection has been made for all-round qualities such as profusion of bloom, cutting, garden effect, variety of colour, and variety of type, as well as length of season, for roses which will do well although given poor attention.

Bush Roses

Kaiserin Augusta Victoria (HT.), white.
Gruss an Teplitz (HT.), crimson.
General Jacqueminot (HP.), dark red.
Hermosa (B.), clear pink; blooms continually.
Mme. Caroline Testout (HT.), silver pink.
All the Polyanthas are suitable for this use.

ROSES FOR CITY GARDENS

In districts crowded with residences, with a minimum of light and air and a maximum of smoke and shadow, only the strongest roses of each group may be planted. A tolerable success may often be had even where the smoke is that from soft coal. Of course roses must have some sunshine.

Hybrid Perpetuals, Dark

Baron de Bonstetten, very dark red.
General Jacqueminot, dark bright red.
Ulrich Brunner, cherry red.

Hybrid Perpetuals, Lighter Shades

Frau Karl Druschki, white, a superb rose.
Mme. Gabriel Luizet, pink.
Magna Charta, bright pink, suffused carmine.
Paul Neyron, pink; the largest of all roses.

Hybrid Teas

Duchess of Wellington, light yellow.
Gruss an Teplitz, crimson scarlet.
Hermosa (B.), clear pink.
Lady Ursula, fleshy pink.
Los Angeles, flame pink and salmon.
Radiance, lively pink.
Red Radiance, bright crimson.

Climbers

Alida Lovett, bright pink.
American Pillar, single; crimson to white.
Bess Lovett, lively bright crimson.
Dr. W. Van Fleet, light pink; fine buds.
Excelsa, crimson scarlet, in clusters.
Silver Moon, large; pure white.
White Dorothy, pure white clusters.

ROSES FOR SHRUBBERY

Flowers are here a secondary consideration. The bush must be shapely, free from insects and diseases, and of easier culture than garden roses.

Climbers

All those named on pages 92 and 93 may easily be trained to shrub shape.

Bush Roses

Austrian Copper
Harison's Yellow
Hugonis
The Lord Penzance Sweetbriers
Rosa spinosissima and its variety altaica
R. blanda
R. lucida, pink and white forms
R. setigera
R. setipoda
R. rubiginosa
R. rugosa and its hybrids

ROSES FOR EDGING WALKS

The Polyantha roses, previously described, are ideal for the purpose, as they seldom grow to more than two feet, are compact and sightly, and bloom continually.

For a higher edging, the Scotch roses (R. spinosissima) are fine, growing about three feet high, and holding foliage in good condition until frost.

ROSES FOR THE WILD GARDEN

They must be of the easiest possible cultivation, single, free growing, and should be allowed to climb or trail at will over other shrubs. All the native species find a most appropriate place in the wild garden where they will flourish and

attain a beauty of perfection not dreamt of in the fields; they should be located in a meadow-like effect. Any one who has visited the Arnold Arboretum in Boston will recall the richness of the wild rose flora in the meadow and along the edges of the drives and walks. That is the model.

ROSES FOR CLOTHING BANKS

Banks can be held from erosion and a very lovely bloom effect be obtained in summer by planting almost any of the recommended hardy climbers of strong growth. If the bank is of poor or newly graded soil, these climbers may well be set in pockets of rich soil.

Some railroads, as has been mentioned before, have seen the wisdom of planting thus for the protection and beautification of embankments, and with notable results.

Drooping or Trailing Roses

Max Graf, single pink.
Mrs. M. H. Walsh, double white.
R. Wichuraiana, single white.

Upright Growers to about three feet

Alberic Barbier, primrose.
Excelsa, bright crimson.

Hiawatha, single, crimson and white.
Lady Gay, clear pink, double.
Silver Moon, double white.
White Dorothy, double white.

The above may be allowed to grow untrained, and when they are tangled and old, can be mowed off for renewal.

Any of the hardy climbers are excellent for this use.

ROSES FOR CEMETERIES

Modern cemeteries restrain miscellaneous planting, and roses should be used preferably in suitable borders. For ground cover, where permitted, *R. Wichuraiana*, Alberic Barbier, and Mrs. M. H. Walsh are best. For borders, use the Hybrid Perpetuals or the Polyanthas; and Gruss an Teplitz is a favourite. If pillars are admissible, any of the hardy climbers may be adapted, as previously directed.

ROSES FOR VERANDAS OR PILLARS

If the arbours and arches are exposed to severe winter winds at low temperatures bend down the wood and either cover it with earth or with some other protective material that

will exclude heavy rains. This protection is not necessary south of the latitude of New York.

See also the section of "Modern Hardy Climbing Roses," on page 78.

The varieties named below are the standard dependable sorts, found most satisfactory over large range of the United States:

American Pillar
Christine Wright
Climbing American Beauty
Dorothy Perkins
Dr. W. Van Fleet
Evangeline
Excelsa
Gardenia
Hiawatha
Paul's Scarlet Climber
Silver Moon
Tausendschön
White Dorothy

For the Southern States (south of Washington) and the California coasts, less hardy roses are available, including:

Chromatella
Climbing Cecile Brunner
Climbing Lady Ashtown
Climbing Mme. Caroline Testout
Gloire de Dijon
Maréchal Niel
Mme. Alfred Carrière
Mrs. Robert Peary
Reine Marie Henriette

FOR SANDY SOILS OR SEASIDE

The favourite HP. roses, if budded on the Dog Rose or Brier, can often be grown very

successfully in such situations, but the one rose par excellence is R. rugosa.

Trailers

R. Wichuraiana, semi-evergreen, single, white.
Gardenia (WH.), a semi-evergreen, double white.
Evergreen Gem (WH.), a semi-evergreen, creamy white, single, large flower.

Upright

Rosa rugosa and its hybrids, red to white.
Scotch, white, pink, and yellowish.
Penzance Sweetbriers—including Brenda, Rose, Bradwardine, Amy Robsart, Meg Merrilis, etc.—white, pink, and orange.

ROSES FOR CUT FLOWERS IN WINTER

The growing of roses in greenhouses is a highly specialized matter, in which American growers particularly excel. New varieties adapted to indoor culture are constantly being produced, and these must be handled by experts to get the great size and beauty demanded by a critical cut-flower market which each year absorbs more than a hundred million cut roses. Among the late favourites are Columbia, Hill's America, Commonwealth, Premier, Crusader, Legion, Madame Butterfly, and Annie Laurie. Older but yet largely used roses are American

Beauty, Hadley, Mrs. Aaron Ward, Sunburst, Ophelia, Francis Scott Key, Richmond, Milady, Double White Killarney.

ROSES FOR POTS AT CHRISTMAS AND EASTER

Those who have attended the great national flower shows usually held in late March will have no difficulty in remembering the beauty of the roses in pots and tubs there shown. Certain skilled florists produce these in the greatest perfection, the method being to prepare the plants a year in advance, to pot them early in autumn before the flowering time, and then to bring them forward in greenhouses kept at comparatively low temperature, regulated by the date of the desired maturity.

While any of the ordinary rose varieties may thus be brought into bloom out of season, certain of the Polyantha class and of the hardy climbers seem to give the most pleasing result.

Among the Polyanthas or Baby Ramblers these are desirable for forcing in pots:

Aennchen Müller
Louise Walter (Baby Tausendschön)
Marie Pavic
Miss Edith Cavell
Mme. Norbert Levavasseur
Orleans

Of the hardy climbers the following have given beautiful results when trained into form and planted in tubs:

Dorothy Perkins
Elizabeth Ziegler
Eugene Jacquet
Excelsa
Hiawatha
Mrs. M. H. Walsh
Purple East
Tausendschön
White Dorothy

ROSES FOR GREENHOUSE DECORATION

Roses for this purpose should make a free growth and cover a good space in a season; therefore climbing roses are best. The larger-flowered kinds may be used for cut flowers also. Train the vines along the rafters, on a wire or upon a trellis against the wall.

Maréchal Niel (N.), yellow.
Reine Marie Henriette (T.), cherry red.
Gloire de Dijon (T.), creamy yellow.
Climbing La France, and other climbing forms of the popular varieties.
Mrs. Robert Peary.

ROSES FOR BOUTONNIÈRES

A gentleman who wears a rose bud in his coat lapel every day wishes a moderate-sized, compact, half-open bud of lasting quality. The

Roses of various types planted freely with herbaceous perennials make a gorgeous show of colour in June, and the general effect is pretty

following are adapted to this purpose, and are also desirable for garden decoration and cut flowers:

Hardy

Dr. W. Van Fleet
Emily Gray
General Jacqueminot
Persian Yellow
Prince Camille de Rohan
Salet Moss

Hybrid Teas and others

Antoine Rivoire
Étoile de France
Gruss an Aachen
Lady Alice Stanley
Lady Ursula
La France
Laurent Carle
Los Angeles
Miss Lolita Armour
Mrs. Aaron Ward
Mrs. A. R. Waddell
Radiance
Red Radiance
Rose Marie
Souvenir de Claudius Pernet
Tip-Top

ROSES FOR THEIR FRUITS

For table decoration in winter:

Euphrosyne
Thalia
R. rugosa
Rosa pomifera
Rose setipoda
Brenda, one of the Penzance Sweetbriers

ROSES FOR GREAT MASSES OF FLOWERS

It is impossible to have the best flowers and the best bush at the same time. If roses are

grown for a big floral display, the bushes or vines are almost sure to be unsightly when out of bloom. Therefore, the rosarium or formal rose garden, which is designed for a big display of double flowers, should be in an enclosed out-of-the-way place where it will not interfere with landscape effects. The following are excellent for entrances to rose gardens or hedges surrounding them:

Polyantha—low growth

Greta Kluis	Mme. Norbert Levavasseur
Jessie	Orleans
Marie Pavic	Yvonne Rabier

Hybrid Teas and Rugosas

Écarlate	Lady Ursula
F. J. Grootendorst	La Tosca
Gruss an Aachen	Mme. Georges Bruant
Gruss an Teplitz	Mme. Meha Sabatier
Hermosa	*Rosa rugosa alba*

Also the stronger-growing popular varieties of the HP. group as enumerated in the lists of resistant and town roses.

ROSES FOR "STANDARDS" IN FORMAL GARDENS

The object of "standards" is to break the low level of the rose beds. They fit formal gar-

dens only, and are effective for an "avenue" effect on the sides of the principal walks. These standards are usually "worked" on Rugosa stems, and may be safely wintered either by laying them down with a cover of earth (the "ball" of their roots being tipped over), or by storing them in a deep coldframe or cold greenhouse.

Most of the Hybrid Teas and some climbers are available in standards. Among the best are:

Aviateur Bleriot
Duchess of Wellington
Hiawatha
Janet
Jonkheer J. L. Mock
Lady Ashtown
Lady Pirrie
La Tosca
Miss Cynthia Forde
Mme. Caroline Testout
Mme. Meha Sabatier
Ophelia

ROSES FOR FOREGROUND

Dwarf-growing roses for fronting large beds or for use in the foreground of shrubbery borders where a double-purpose garden is maintained are very useful.

All the Polyanthas
Écarlate
F. J. Grootendorst
Gruss an Teplitz
Hermosa
Mrs. Aaron Ward

THE MOST SWEETLY SCENTED ROSES

As a rule, roses must be either sweetly scented or large flowered to be really popular. A few famous roses have no appreciable odour, e. g., Baroness Rothschild, Victor Verdier, Captain Christy, Frau Karl Druschki. Few of the desirable hardy climbers are fragrant. The neglected old Bourbon rose, Zéphirine Drouhin, is a low climber with lovely deep pink flowers that are very sweet.

Old-fashioned Fragrant Roses

Damask (*R. damascena* group), scent leaves petals on drying; pink and white.

French (*R. gallica* group), scent retained on drying; all colours.

Moss group, white to pink.

Musk group, generally white, a few pink or red; most fragrant in a still, moist atmosphere.

Noisettes, hybrids of the true musk; all colours.

Modern Fragrant Roses

The Tea group; all are more or less scented with the characteristic tea odour. Gloire de Dijon, yellowish, and Maréchal Niel (really a Noisette), yellow, are especially fragrant.

The Hybrid Teas are generally sweet-scented, some with the characteristic tea odour and some

with the richer fragrance of the Hybrid Perpetual. La France, Étoile de France, Radiance, Los Angeles, Laurent Carle, and Château de Clos Vougeot are especially fragrant.

The Hybrid Perpetuals mostly have distinctive and delightful fragrance. Especially sweet are General Jacqueminot, Baron de Bonstetten, American Beauty, Anna de Diesbach, George Dickson, Magna Charta, Mrs. John Laing, Paul Neyron.

The foliage of the Sweetbriers is most fragrant, but most of the Species roses are but faintly scented.

CHAPTER VIII

Roses Adapted to Special Locations

Obviously the vast area of the rose-growing regions of North America presents such diversity of climate as to give opportunity somewhere to grow any known rose, and conversely to make it desirable especially to select varieties particularly adaptable to certain regions.

In the matter of hardiness the region from Mexico to British Columbia can be broadly divided into four sections. In the first, or southernmost portion, any rose should be hardy without protection, and the Teas and other tender classes can be grown outdoors to an irregular line across the continent from about the latitude of Richmond, Virginia, to San Francisco, California, always with consideration of elevation or aridity which modify climate.

Across the continent north of this, to a line beginning at Philadelphia, the Hybrid Tea and the hardy climbing roses will live outdoors without protection, and again north to the Great

Lakes and in New England there is a region of fertility in which the Hybrid Perpetuals and the Rugosa hybrids are hardy.

Another region includes elevations so high, summer frosts so late, and moisture so scanty, that roses cannot be expected to endure. This comparatively small region is north and south in isolated spots.

California and the Pacific Northwest present conditions peculiarly favourable to the rose. In Los Angeles and the vicinity, the distinguished amateur and hybridizer, Captain George C. Thomas, Jr., believes rose heaven to exist; but the cities of Portland, Oregon, and Seattle, Washington, and the entire Puget Sound districts, are sure that they are the celestial region for the queen of flowers. Indeed, these latter places reproduce, in a way, the peculiarly favourable rose conditions of England, and in defiance of the latitude, roses are grown as shrubs on the streets of Portland, the "City of Roses," which each year celebrates a great festival of rose beauty.

Methods of rose culture and knowledge of suitable varieties for any particular purpose are alike changing and improving, wherefore any

hard-and-fast statements in relation to rose adaptability are hazardous, and may almost at once be disproved. Several years ago the Department of Agriculture in Washington prepared a "Rose-Zone Map," first published in the *American Rose Annual* for 1920, which, based on weather observations and records, divided the United States into zones for rose hardiness. Scarcely was this map published when rose-friends began to controvert it with local facts. The chief value of the map was generally to classify the country and to start inquiry and criticism toward the more accurate setting out of the facts.

For example, in the *American Rose Annual* for 1923 were printed detailed reports from southern Ontario, Montana, Kansas, and Alaska, telling how well certain roses under certain conditions have in those places rewarded the grower, not seldom in contravention of the proposals of the Rose-Zone Map. Yet none of these instances did more than indicate what love and devotion could do, or show the exception that proves a rule!

The most definite statements yet obtained as to rose selections are those published in the 1923

American Rose Annual, as the result of a country-wide referendum. By permission, these are subjoined from "The Favoured Roses of All America," and the lists of varieties included.

AN AMERICAN ROSE REFERENDUM

"In June, 1922, President Pyle had sent to the entire membership a query card asking for returns on the 'favourite ten' bush roses—the Teas, Hybrid Teas, etc.—and on the best ten climbing roses. The response was by far the largest in number and most informative in character of any yet received. Some 426 rose-growers took the trouble to answer, and many of them wrote letters in addition to using the return card. These replies have been carefully collated and studied and the information they provide is here made available.

"It is not too much to say that the conclusions reached are surprising, and even astonishing. That there should be such unanimity of opinion; that the favourite bush and climbing roses should be so nearly identical all over America—North, South, East, and West; that the verdict of this great and acute jury should be so definite, is matter for gratification.

"Further, the showing is most important in its helpfulness. The beginner in rose-growing has available to him a safe guide to primary success. The dozen favourites among the bush roses—for it was easy to extend the ten to twelve from these complete returns—give any one anywhere a blooming, scented, colourful, dependable assortment with which to lay the foundations, so to speak, of a rose-garden. The dozen hardy climbers provide a reach of vigour and beauty that was unattainable anywhere in the rose world at the beginning of the twentieth century.

"That there was great opportunity for selection is shown by the fact that in all 287 bush roses and 118 climbers were named in the returns. It was not at all a limited choice these amateurs had, in selecting by majority their "best 40" out of a total of 405 varieties considered. Indeed it may be assumed that the choice covered every rose available commercially in America, for every one of the 405 sorts was among the "best 10" in someone's list, and there were certainly as many more not considered worth including.

"The lists provide not only safe guidance for

the favourite dozen in each class, but as well almost as dependable a choice beyond the favourites. All of the bush roses included in the 'favourite dozen' in each of the five sections come within 22 varieties, and the amateur can well depend upon all of them.

"With the exception of two sorts not hardy north, all of the 18 included climbers may well be planted by any one who has room for their varied beauty.

"The Editor confesses to some surprises, beyond the main surprise at the relative unanimity of choice. He rather expected Radiance to lead, but had no idea that Los Angeles would be in this chosen dozen. There was reason to believe that Frau Karl Druschki would be at the top, but it isn't.

"Then in the climbers there was the thought that the Noisettes would take top place in the South and in California, but instead we see the American trio, all Van Fleet originations, leading everywhere, and in the same order, save only in the South, where Silver Moon changes places with Dr. W. Van Fleet. This latter difference seems peculiarly proper, because of the Cherokee blood in Silver Moon.

"The lists follow, first as collated for all America, next as including all the varieties in the two classes embraced in the favourite dozen for each of the five sections, and last in the choice as separated into those five geographical sections.

"*Favourite Bush (Tea, Hybrid Tea, and Hybrid Perpetual) Roses*

In the *New England States* (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island): Frau Karl Druschki, Ophelia, Radiance, Duchess of Wellington, Mrs. Aaron Ward, Gruss an Teplitz, Los Angeles, Kaiserin Augusta Victoria, Killarney, Mme. Edouard Herriot, Jonkheer J. L. Mock, Lady Alice Stanley.

In the *Middle States* (New York, New Jersey, Pennsylvania, Delaware): Ophelia, Frau Karl Druschki, Radiance, Duchess of Wellington, Mrs. Aaron Ward, Los Angeles, Mme. Edouard Herriot, Columbia, Gruss an Teplitz, Lady Alice Stanley, Killarney, Red Radiance.

In the *Central States* (Ohio, Indiana, Illinois, Kansas, Missouri, Michigan, Wisconsin, Minnesota, Nebraska, Iowa, South Dakota, Arkansas): Frau Karl Druschki, Ophelia, Radiance, Gruss an Teplitz, Jonkheer J. L. Mock, Columbia, Mme. Caroline Testout, General Jacqueminot, Los Angeles, Sunburst, Killarney, Mrs. Aaron Ward.

In the *Western States* (Washington, Oregon, California Colorado, Utah, Arizona, Wyoming, Idaho): Ophelia, Mme. Edouard Herriot, Los Angeles, General MacArthur, Frau Karl Druschki, Lady Hillingdon, Mme. Melanie Soupert, Hoosier Beauty, Duchess of Wellington, Mme. Caroline Testout, Joseph Hill, Sunburst.

In the *Southern States* (Maryland, District of Columbia, Virginia, West Virginia, South Carolina, Georgia, Florida, Alabama, Texas, Kentucky, Tennessee): Radiance, Frau Karl Druschki, Ophelia, Red Radiance, Sunburst, Gruss an Teplitz, Mrs. Aaron Ward, Kaiserin Augusta Victoria, Columbia, Mme. Caroline Testout, Lady Hillingdon, Duchess of Wellington.

"*Favourite Climbing Roses*

In the *New England States:* Dr. W. Van Fleet, Silver Moon, American Pillar, Dorothy Perkins, Tausendschön, Paul's Scarlet Climber, Climbing American Beauty, Excelsa, Hiawatha, Gardenia, Aviateur Bleriot, Christine Wright.

In the *Middle States:* Dr. W. Van Fleet, Silver Moon, American Pillar, Paul's Scarlet Climber, Dorothy Perkins, Tausendschön, Climbing American Beauty, Gardenia, Excelsa, Christine Wright, Hiawatha, Climbing Lady Ashtown.

In the *Central States:* Dr. W. Van Fleet, Silver Moon, American Pillar, Climbing American Beauty, Dorothy Perkins, Excelsa, Tausendschön, Paul's Scarlet Climber, Christine Wright, Hiawatha, Aviateur Bleriot, Gardenia.

In the *Western States:* Dr. W. Van Fleet, Silver Moon, Tausendschön, American Pillar, Climbing Mme. Caroline Testout, Climbing Cécile Brunner, Dorothy Perkins, Paul's Scarlet Climber, Mme. Alfred Carrière, Excelsa, Climbing American Beauty, Maréchal Niel.

In the *Southern States:* Silver Moon, Dr. W. Van Fleet, American Pillar, Climbing American Beauty, Dorothy Perkins, Paul's Scarlet Climber, Tausendschön, Maréchal Niel, Christine Wright, Excelsa, Gardenia, Mrs. Robert Peary.

"Taken all together, the two lists of chosen sorts for the whole country follow, together with the vote received by each in the total of 426 votes cast:

"*The 'Favourite Dozen' Bush Roses in the United States:*

Ophelia, 202
Frau Karl Druschki, 183
Radiance, 163
Los Angeles, 114
Mrs. Aaron Ward, 108
Gruss an Teplitz, 107
Duchess of Wellington, 103
Mme. Edouard Herriot, 82
Columbia, 74
Killarney, 74
Kaiserin Augusta Victoria, 75
Sunburst, 70

"*The 'Favourite Dozen' Climbing Roses in the United States:*

Dr. W. Van Fleet, 262
Silver Moon, 197
American Pillar, 174
Dorothy Perkins, 122
Paul's Scarlet Climber, 107
Climbing American Beauty, 106
Tausendschön, 100
Excelsa, 68
Gardenia, 50
Christine Wright, 46
Hiawatha, 38
Aviateur Bleriot, 23

"As previously suggested, the beginner would not go astray if he planted all of the roses included in the five lists, as they follow.

"*All the Varieties Included in the 'Favourite Dozen' Bush Roses in the Five Districts of the United States:*

Columbia, HT.; Duchess of Wellington, HT.; Frau Karl Druschki, HP.; General Jacqueminot, HP.; General Mac-

Arthur, HT.; Gruss an Teplitz, HT.; Hoosier Beauty, HT.; Jonkheer J. L. Mock, HT.; Joseph Hill, HT.; Kaiserin Augusta Victoria, HT.; Killarney, HT.; Lady Alice Stanley, HT.; Lady Hillingdon, T.; Los Angeles, HT.; Mme. Caroline Testout, HT.; Mme. Edouard Herriot, Per.; Mme. Melanie Soupert, HT.; Mrs. Aaron Ward, HT.; Ophelia, HT.; Radiance, HT.; Red Radiance, HT.; Sunburst, HT.

"*All the Varieties Included in the 'Favourite Dozen' Climbing Roses in the Five Districts of the United States:*

American Pillar, HW.; Aviateur Bleriot, HW.; Christine Wright, HW.; Cl. American Beauty, HW.; Cl. Cecile Brunner, Mult.; Cl. Lady Ashtown, Cl. HT.; Cl. Mme. Caroline Testout, Cl. HT.; Dorothy Perkins, HW.; Dr. W. Van Fleet, HW.; Excelsa, HW.; Gardenia, HW.; Hiawatha, HW.; Maréchal Niel, Nois.; Mme. Alfred Carrière, Nois.; Mrs. Robert Peary, Cl. HT.; Paul's Scarlet Climber, HW.; Silver Moon, HW.; Tausendschön, Mult.

"The 22 favoured bush roses include, in broad colour classes, 2 white, 7 pink, 5 red, 5 yellow, and 3 salmon sorts. The 18 favoured climbers are divided among 2 white, 8 pink, 4 red, and 4 yellow varieties."

WHERE TO GET THESE AND OTHER ROSES

In the last revision of this book there was printed a list of "Roses that can easily be bought," now omitted, because the rapid

growth of rose-interest in America as reflected in the provision of new varieties by the tradesmen, even with the handicap of an illogical and unreasonable quarantine instituted in 1919 by the Federal Horticultural Board, makes any list stale the day after it is printed. Reference to the advertising columns of such periodicals as *The Garden Magazine* and others will disclose the addresses of tradesmen whose catalogues, usually sent free upon request, will give up-to-the-minute information as to available rose varieties.

Further, membership in the American Rose Society will keep the amateur reliably informed as to the value of new introductions, native and foreign.

The Rambler hybrids are unsurpassed for house or pillar decoration. This is the Dawson, with bright pink flowers, produced in June

CHAPTER IX

Roses of American Origin

While a careful study of the modern rose catalogue will disclose the fact that we have in America largely taken our rose fashions from Europe, yet that same study will also disclose the tendencies and the successes in rose origination in this country. It will at once appear that our rosarians have been far more careful than their European brethren, adding only varieties that seem more distinct and important, and avoiding the long lists of near-duplications that give us from abroad a hundred or more "new" varieties to consider and perhaps to try each year.

American hybridizers have, too, considerably worked in material productive of varieties better adapted to our conditions than those produced abroad.

About the year 1814 the first of the Noisette class was raised—a class now only grown in the

South in California. John Champney, of Charleston, South Carolina, fertilized the White Musk with pollen from the Blush China, and the result was named Champney's Pink Cluster. Another Charleston florist, Philip Noisette, raised a seedling from this which he sent to his brother in France—Louis Noisette—about 1817. From this beginning, the Noisettes (which properly, however, should have been called Champney Roses) were raised and distributed, contributing greatly to rose values in Europe especially. The modern members of this group, having a large admixture of Tea in them, are not quite hardy. Some of the greatest of the yellow roses for warm climates are of this section.

About 1836 Samuel and John Feast, two Baltimore florists with the true hybridizing instinct, obtained some crosses between the native *Rosa setigera*, well known as the wild Prairie Rose, and near-by roses of the time, probably mostly of the Noisette and Provence type. The result, first in evidence about 1843, included two climbing roses that are yet with us, in Baltimore Belle and Queen of the Prairies, the latter of which is ruggedly hardy. The

other variety seemingly had Noisette blood in it, inasmuch as it is not so dependably hardy everywhere, though for many years this well-named Baltimore Belle gave us the only light-coloured cluster-flowered climbing rose.

That America had produced but few roses in the first half of the nineteenth century is in evidence in a copy of a catalogue of roses issued in 1848, by Henry H. Crapo, of New Bedford, Mass., including less than a half-dozen American varieties in its one hundred and twenty-five described sorts—some of them, it is interesting to note, rather wonderfully named, as, for example, the "Belevem Episcopal" rose!

The very carefully compiled "Official List of Roses Introduced in America," prepared by Charles E. F. Gersdorff, of Washington, from a study of all the available literature on the subject, and published by the American Rose Society in its *Annual* for 1922, shows 611 names of roses introduced in America to that date, of which 166 have disappeared from catalogues, leaving of net American introduction 445 rose varieties in about 125 years, credited to 181 persons and firms.

Most of this list of persons and firms includes

single introductions, either of a seedling or a sport, or as in the case of the famed American Beauty Rose, an importation by George Bancroft, the historian, who seems to have brought in from France in 1886 the H. P. Mme. Ferdinand Jamain, produced by Ledéchaux in 1873, and renamed in some unexplained way as put into commerce by a Washington firm, Field Bros. It is yet a leading cut-flower rose though successful outdoors in a few gardens.

Another of these single introductions was of the lovely light pink sport of the fine American Hybrid Tea Radiance, named for and introduced by Mrs. Charles Bell, of Washington. A beautiful Rugosa hybrid, Agnes Emily Carman, was the sole contribution of the famous editor, E. S. Carman. The justly famous Dorothy Perkins, a hardy climbing rose that has found country-wide acceptance, was sent out in 1902 by the wholesale nurserymen, Jackson & Perkins, the successor to which, the Jackson & Perkins Co., is responsible for several other roses.

But the main producers of American roses of value, and yet in commerce, are but few in number, though rich in achievement. Thus 19 originators and introducers are responsible for

the introduction within a generation of 332 varieties, including certain duplications between originator and introducer. In this brief survey, we may properly merely mention the introducers whose foresight and enterprise have made the work of the hybridizers available to the public. The California Rose Co., of Pomona, Calif.; the Conard & Jones Co., of West Grove, Pa.; the Dingee & Conard Co., of the same place; Peter Henderson & Co., of New York; A. N. Pierson, Inc., Cromwell, Conn., all have thus done much service, and a dozen or more firms have introduced from one to five varieties each, usually for greenhouse growing, and being sports from existing popular varieties. Thus, for example, John N. May, of Summit, N. J., observed and propagated the most useful sport, The Bride, among his houses of the then popular Catharine Mermet.

Considering the actual rose originations of the past generation, it is wise to separate them into two groups. In America much acute attention has been given to the production of improved varieties of roses for producing the millions of cut flowers grown under glass to satisfy the hunger of our people for roses all the

year. Indeed, in this special field, American hybridizers easily lead the world.

Now these greenhouse roses are quite constantly based on garden varieties, but are developed without any reference to their garden adaptability. Fortunately some of them eventually escape into the garden, and have given us most distinct advantage there, as, for example, John Cook's Radiance, and its best sports, Gude's Red Radiance and Mrs. Charles Bell. In similar fashion, E. G. Hill's Columbia has slipped from the greenhouse to the garden, with advantage to the garden.

One of the older rosarians is the venerable John Cook, of Baltimore, above mentioned, whose 22 productions, all, it is believed, intended for the greenhouse, provide us now not only with the Radiance group but with a most distinct very double red rose in Francis Scott Key, together with Panama and Souvenir of Wootton. The production of Radiance alone is a permanent monument of honour for this man who has lived with his roses for more than sixty years, for it is the "one best bet" among the garden roses now in commerce.

John H. Dunlop, of Richmond Hill, Ontario,

has sent out some five roses of real merit for indoor culture. His outstanding varieties are F. W. Dunlop and Mrs. Henry Winnett.

Alexander Montgomery, Jr., of Hadley, Mass., is credited with eight varieties, all distinct and valuable. Mrs. Charles Russell and Hadley have invaded the garden also, and Crusader, Pilgrim, and Montgomery's Priscilla are full-bodied roses that are largely grown under glass. Undoubtedly the leader in this field, in all the world as well as in America, is E. Gurney Hill, of Richmond, Indiana, to whose genius, insight, and courage we owe not only the production of many superior roses, but the introduction from abroad, after enduring his scrutiny, in their homes, of many of Europe's best. It was Mr. Hill who saw in Ophelia the qualities that have since impressed themselves effectively on the race of Hybrid Teas, and he "put it on the map" in America.

In a half century of rose devotion, Mr. Hill has become the father, so to speak, of some 42 roses. Among these are the present leaders in under-glass culture, Columbia, Premier, Hill's America, Mme. Butterfly, all of which, by the way, seem to be also good garden roses. It is

related by Mr. Hill that on a visit to Kew Gardens, in London, he was gravely informed that General MacArthur was the best red outdoor bedding rose for England, and he was advised to invest in it. The smiling reply that he had originated it in 1904 astonished his informant.

Rhea Reid, Robin Hood, Indiana, Mrs. Theodore Roosevelt, and others also connect Mr. Hill with the amateur's garden.

In purely outdoor roses, America's chief advances have been in the hardy climbing roses, at least until recently. Jackson Dawson, for a lifetime and until his death the gardener and propagator at the famous Arnold Arboretum, near Boston, first considered the value of *Rosa multiflora* and *R. Wichuraiana* as parents. Before the introduction from England of Crimson Rambler, a Multiflora form, Mr. Dawson had successfully produced (in 1888) the yet greatly admired Dawson climber. He sent out the Lady Duncan as probably the first Wichuraiana hybrid, and his lovely Wm. C. Egan in the same year united Wichuraiana and General Jacqueminot. His little-known Sargent rose, described by those who have it as a glorified apple-blossom, united both Multiflora and

Wichuraiana with the Hybrid Perpetual blood.

The once-famous Ellwanger & Barry nurseries in Rochester, N. Y., long since overrun by that great city, included in its group George H. Ellwanger, the first American rose authority of his day, and the author of a book yet most valuable. He did some hybridizing in garden forms before the advent of the Hybrid Teas, and the good rose Marshall P. Wilder remains in his memory.

W. Albert Manda, a great plantsman of South Orange, New Jersey, is credited with the introduction of some 15 Hybrid Wichuraiana climbers, of which Gardenia and Evergreen Gem yet remain in commerce and in gardens. One of these Hybrids, Jersey Beauty, has been used abroad as a parent for other advanced climbing roses, particularly the lovely but not universally hardy yellow beauty, Emily Gray.

Josiah Hoopes, of the firm of Hoopes Bros. & Thomas Co., well-known nurserymen of West Chester, Pa., was a famous botanist and expert in conifers in his day. He loved roses, and directed the work of his assistant, James A. Farrell, which resulted in the production of three of the best large-flowered hardy climbers in

Climbing American Beauty, Christine Wright, and Purity. These great Wichuraiana hybrids set a new standard, and have hardly been approached in beauty and adaptability.

Captain George C. Thomas, Jr., now of Beverly Hills, Calif., but living during his earlier work with roses at Chestnut Hill, Pa., has worked to begin a race of hardy everblooming climbers, with measurable success. His Bloomfield Abundance and Mrs. George C. Thomas show a very distinct break toward recurrent blooming, and his Bloomfield Progress is a lovely and fragrant dark red Hybrid Tea. Incidental to his work, however, he has produced a most beautiful and valuable pillar rose or low climber in Dr. Huey, bearing in June a great covering of durable semi-double large dark red flowers of the greatest impressiveness. Captain Thomas is a successful author as well, his book on roses being a standard, and his contributions to the *American Rose Annual* are always original and of value.

The one American grower now working directly in Hybrid Tea roses aimed to enlarge American gardens in comparison with the European productions, is Fred H. Howard, of

Howard & Smith, Los Angeles, Calif. Mr. Howard's success has been notable, for he has twice been awarded the highest rose honour of the world, the foreign gold medal given each year to the rose found best by an international jury of experts observing the trials at the great Bagatelle rose-gardens in Paris. It was Los Angeles and Miss Lolita Armour that captured these prizes, and Mr. Howard's other productions, Mrs. S. K. Rindge, Mrs. W. C. Egan, Wm. F. Dreer, Eldorado, and Fragrant Bouquet, are each of unique beauty and value. He has worked mostly with the difficult Pernetiana strain, and he will undoubtedly give the world other great roses.

At the end of this brief survey of all American rose production stand two names of especial importance because their work has impressed itself on all the rose world. Both are dead, but yet live in millions of blooming roses each year.

M. H. Walsh lived his rose life at Woods Hole, Mass., on Cape Cod, and there he produced some 41 new varieties of his favourite flower, all Wichuraiana hybrids save two or three Hybrid Perpetuals, and predominantly single-flowered—for Mr. Walsh was among the first

to combat by sheer loveliness the fad for more and more petals in the dress of the queen of flowers. True, he gave us Excelsa, which displaces the mildew-loving Crimson Rambler; Lady Gay, which runs with Dorothy Perkins in its vigour of pink beauty, and Mrs. M. H. Walsh, a unique creeping mass of double white loveliness.

To the writer of these words Mr. Walsh's single roses present his enduring claim for fame. The "Walsh Quartette" has been named, including the succession of Milky Way in clouds of purest white, Evangeline in dainty blush, Paradise in exquisite incurved petals of deeper pink, and Hiawatha in bold crimson with white eye. These roses are of great hardiness and of the utmost vigour, and while they bloom but once, that bloom is an event the memory of which suffices for the remainder of the year. All the Walsh hybrids are worth while.

Perhaps the greatest figure in America among garden rosarians was that of the late Dr. W. Van Fleet, whose untimely death in 1922 checked a broadly based series of experiments proceeding under the fostering care of the Bureau of Plant Industry in the United States

Department of Agriculture. Doctor Van Fleet had gotten together at Bell Experiment plot in Maryland a large collection of rose species, and he had gone far with the attempt to breed into American roses the qualities, colours, and beauties of the wild roses especially of China and the Far East. Possessing the sixth sense of the hybridist in a superlative degree, he had before him the goal of what he called "dooryard roses," which should take place generally over the land about the home in such beauty and endurance as we find the lilacs and spireas, and similar shrubs. He had made much progress toward this goal, and as these words are penned, the first of his production toward the dooryard ideal, Mary Wallace, is being put into commerce through a unique contract between the Department of Agriculture and the American Rose Society. Mary Wallace is a lovely bright pink semi-double flower of exquisite form and large size, produced over several weeks on a plant that is climber or bush, as the grower prefers, but never needs to be the coddled pet of any grower.

But Doctor Van Fleet had to his credit 23 roses of originality and quality, produced within

the last quarter century of his useful life, along with better strawberries and raspberries, better iris and lilacs, and an approach to a blight-resistant chestnut. He was well known abroad as the originator of the rose which has come to dominate England and much of France as a hardy climber, fitly named American Pillar. His Silver Moon, a hardy Cherokee seedling, is another favourite at home and abroad, and his Dr. W. Van Fleet (so named by its introducers against his desire to call it "Daybreak") is probably the finest hardy climber in existence, providing as it does the light pink individual buds and blooms of a perfect Hybrid Tea rose on a plant that thinks nothing of growing twenty feet in a season.

Great garden climbers of the Van Fleet production are Aunt Harriet, Bess Lovett, Alida Lovett, and Mary Lovett, and there are a half-dozen yet unnamed that will add other resources of beauty and vigour and hardiness to the American garden. He has used the lovely *Rosa Hugonis* and has also secured hybrids with R. Moyesi, R. Englemanni, and many other species not before worked into commercial strains.

Hybrids with Rugosa are among the works of

Doctor Van Fleet, and his adventures with Multiflora also were most successful. He was undoubtedly the most important contributor of the past half century to the rose advance of America.

No attempt has here been made to offer a complete survey of American rose-growing. A report of encouraging progress has been undertaken, and is confidently submitted.

CHAPTER X

Roses in Antiquity [1]

By Jesse A. Currey

The rose is the oldest cultivated flower. While its origin is shrouded in the dim mists of antiquity, we find in the Bible, in Greek mythology, and in the writings of the ancient Roman philosophers and poets, its history, showing that it was cultivated in the earliest times. Nothing else in the garden can compare with the rose for age, as nothing else can compare with it for beauty of form, brilliancy of colour, or sweetness of perfume. It is one token which has come down to us, without change of character, through countless ages.

In its calm reign the rose has beheld emperors as they fell from their thrones. It has been the silent spectator at the destruction of the greatest cities. It became the favourite token of the Christian church and also of the pagan

[1] Reprinted by permission from the 1921 *American Rose Annual.*

potentate. Poets for centuries have sung its praise, and scientists have worked to improve its colour and form. Mighty rulers have used it on their banners. Infidel conquerors of the Holy City used its essence as a cleanser of those places occupied by Christians, and the Christians in turn used it as the highest mark of appreciation for services rendered in driving the infidel hordes from the same Holy City! The rose has played its part in war, in the Reformation, in the ceremonies of the Christian church, and in the worship of pagan gods. It has survived through all the world's history, and more than ever to-day does it merit the title bestowed on it 2,600 years ago in Athens of "The Queen of Flowers."

Whether the Children of Israel brought the rose with them out of the land of Egypt has not been clearly established, for while the hieroglyphics on the ancient tombs and monuments of Egypt which have been deciphered fail to show that the rose was cultivated in the valley of the Nile during the years the Jews were under Pharaoh's rule, it has been disclosed that the rose was cultivated in Egypt at a very early period. In their new land the Israelites con-

sidered the rose soon after their settlement, as is evident from the fact that we find, about 1000 B. C., in the Song of Solomon:

I am the rose of Sharon.

In the Apocryphal Wisdom of Solomon it is written:

Let us crown ourselves with rose buds before they be withered.

As additional confirmation of the fact that the Jews cultivated the rose soon after they became established in the Holy Land, we find in Isaiah xxxv:1, written about 890 B. C., this passage:

The wilderness and the solitary place shall be glad for them; and the desert shall rejoice, and bloom as the rose.

While the Books of Ecclesiasticus are now omitted from the Bible, we learn in the Apocrypha that the Jews at Jericho had wonderful gardens filled with roses during the eighth century B. C., for this philosopher wrote:

I was exalted like a palm tree in Engaddi and as a rose plant in Jericho.

Elsewhere he gave expression to:

> Hearken unto me, ye holy children, and bud forth as a rose growing by the brook of the field.

Thus not only was the rose known among the Jews prior to the reign of Solomon, but the Greeks as early as the tenth century before the Christian Era had acquired knowledge of rose culture either from the Jews, the Egyptians, or the early Babylonians.

The explorations of ancient Babylon have so far failed to reveal direct evidence that the rose dominated the famous gardens of that city, but it is generally assumed that if it was not included in the original development, attributed to Suetonius, about 1200 B. C., it found place in the gardens when they were developed to their greatest extent under the reign of Nebuchadnezzar, 605 B. C.

Upon reading the ancient Greek poets it will be discovered that the rose was used more frequently in painting word pictures than any other natural object. The freedom of its use suggests that it must have been an every-day as well as a much-admired flower of the Greek, Homer, who, writing about 950 B. C., calls upon the

brilliant colours of the rose to help him paint a picture of the rising sun, when he says that Aurora had rosy fingers and perfumed the air with roses.

That the rose was known among the Greeks long before the time of Homer is evident, for while he used the qualities of the rose in making similes, Greek mythology shows that the rose had been dedicated to the gods of Olympus much earlier. Because of the natural blending of its brilliant colours into each other, just as the shades of night blend and disappear in the rising sun, the rose was consecrated to Aurora. While Greek mythology attributes the origin of the rose to several of the Olympian deities, the generally accepted fable is that Flora one day found dead a favourite nymph, whose virtues were only exceeded by her incomparable beauty. Desiring to perpetuate the memory of her favourite, Flora appealed to the gods of Olympus to change the dead body into a flower which would be superior to all other flowers, and which all other flowers should acknowledge as their queen, the new flower to have blended in it the good qualities of the deities. So Venus gave to the new bloom form, Bacchus

bathed it in nectar, Apollo lent it the vivifying power of his beams of light, and perfume was the gift of Vertumnus. Pomona contributed the fruit, while Flora reserved for herself the colour; and as blue is a cold colour, suggesting death, she withheld this pigment, wherefore there can be no blue roses.

That the Olympian gods determined that the rose should be the queen of flowers is established by the poem of Sappho, about 600 B. C., who wrote of the rose in these words:

> Would Jove appoint some flower to reign
> In matchless beauty on the plain,
> The Rose (mankind will all agree),
> The Rose, the Queen of Flowers should be.
> The pride of plants, the grace of bowers;
> The blush of meads, the eyes of flowers;
> Its beauties charm the gods above;
> Its fragrance is the breath of love;
> Its foliage wantons in the air,
> Luxuriant, like the flowing hair;
> It shines in blooming splendour gay,
> While zephyrs on its bosom play.

Not only was the rose consecrated to Aurora but it was also dedicated to other gods of Olympus, among which was Harpocrates, the god of silence. The fable is that Cupid gave a

rose to Harpocrates to keep silent regarding some of the clandestine meetings of the other gods; therefore the rose became a symbol of secrecy. From this arose a custom of the tribes, later, of suspending a rose from the ceiling of their meeting chambers while the council was in session, the presence of the rose indicating that what transpired was to be held a secret. Such is the origin of the term "sub-rosa."

Sappho gave the rose the name in literature which it bears unto to-day. Further, nearly every Greek poet and writer of the sixth century B. C. and succeeding years wrote something about the rose, which strengthens the opinion that the rose was widely cultivated in ancient Greece. Anacreon (652 B. C.), who was regarded as the leading wit and humorist of the day, wrote:

> Fill the bowl with rose wine;
> Around our temples roses twine,
> And let us cheerfully awhile
> Like the wine and roses smile.

Ancient Macedonia also was a home of the rose before the Christian Era, as Herodotus (450 B. C.) wrote about the roses in the gardens of the rich King Midas. In speaking of these

roses, Herodotus said some of them had sixty petals and a most delightful perfume. Simmias of Thebes about the same time contributed the information about the roses opening their petals over the grave of Sophocles, who had then been dead about fifty years, thus showing that the Greeks at that early age used the rose for decorating graves as well as in their celebrations.

The Island of Rhodes, which had borne many different names in ancient history, is indebted to the culture of the rose for the name bestowed upon it about 405 B. C. by the Greeks. They named it the Isle of Roses, the Greek for roses being Rhodon. In collections of ancient coins and medals are to be found medals of Rhodes, when it flourished as an empire, with a rose on the face of them.

While the Greek poets had sung the praises of the rose for several centuries, it remained for Theophrastus (327–288 B. C.), the Greek philosopher, who succeeded Aristotle as head of the Lyceum, to give us the first botanical description of the rose. Theophrastus wrote two books on "Researches about Plants" and they show him to have been a thorough inquirer.

Search has failed to disclose any other ancient work on the rose until the time of Pliny (23 A. D.), the Roman naturalist who reviewed the work of his Greek predecessor. According to Parsons, who has evidently given much thought and study to these ancient writers,

the number of species known to the ancients was small as compared with the number now recognized by the botanists. Pliny, with whom we find the most detail on this point, says that the most esteemed were those of Praenest and Paestum, which were perhaps identical; those of Campania and Malta, of a bright red colour, and having but twelve petals; the white roses of Haraclea, in Greece and those of Alabande, which seem to be identical with R. centifolia. According to the Roman naturalist and Theophrastus, they grew naturally on Mount Panga and produced there very small flowers; yet when the inhabitants of Philippi went there to obtain them, the bushes on being transplanted produced much improved and more beautiful roses. Pliny speaks also of some other species: one with single flowers, another which he terms Spinola, and also one of Carthage, which bloomed in winter. Unfortunately all that we find of his works on this subject is generally very obscure and it is difficult to compare any he describes with those known at the present day.

From the study of ancient history it is evident that the Romans acquired their love for the rose and learned to cultivate it from the Greeks, although it is possible that they also acquired

knowledge from the Egyptians. The Romans early adopted the rose to give expression to their love for the luxurious. Cicero (106–43 B. C.) in his "De Finibus" speaks of the custom prevailing in Rome at that time of reclining on couches covered with roses. Commenting on the luxury of the day, and with a word of warning he wrote:

> Regulus, in his chains, was more happy than Thori in drinking on a couch of roses.

Verres, who was governor of Sicily and one of the greatest extortionists in the world's history, was severely criticized by Cicero, who reproached him not only for the robberies he committed and the cruelties he enforced, but also for his effeminacy and licentiousness. Cicero, in reviewing Verres's life, said:

> When spring commenced, that season was not announced to him by the return of Zephyr, nor by the appearance of any heavenly sign; it was not until he had seen the roses bloom that spring was visible to his voluptuous eyes. In the voyages which he made across the province, he was accustomed, after the example of the kings of Bithynia, to be carried in a litter borne by eight men, in which he reposed, softly extended upon cushions of transparent materials and filled with roses of Malta, having in

his hand a net of the finest linen full of these flowers, whose fragrance incessantly gratified his eager nostrils.

Of those identified with Roman history prior to the Christian Era, no one used roses with more lavishness than did Cleopatra on her memorable campaign to ensnare Mark Antony. For several successive days Cleopatra gave a great festival, and on the fourth day she caused the floor of the banquet hall to be covered with roses to the depth of eighteen inches. These were retained in a fine net so that the guests in walking over this carpet would not scatter the blooms.

The custom of using roses for garlands was adopted by the Romans from the Greeks. Horace (65 B. C.), in his poem to Quintus Dellius, said, "Bring garlands of roses," and in his invitation to Macænas he wrote: "Roses fair, to deck your hair." Horace loved luxury, and according to Parsons:

When he abandoned himself to pleasures, he was always supplied with roses. In congratulating one of his friends on his safe return from Spain he recommended that these flowers should not be wanting at the festival. On another occasion he told his favourite servant that he disliked the pompous displays of the Persians and escaped them by

searching in what place the late rose was found. Drawing a picture of luxurious ease for his friend Hirpinus, he speaks of "lying under the shade of a plane or pine tree, perfuming our spotless hair with Assyrian spikenard and crowning ourselves with roses." The use of crowns of roses as objects of luxury is well authenticated, for among medical men of antiquity, endeavours were made to determine what kind of flowers were suitable to place in crowns without detriment to health; and according to report made on this subject, parsley, the ivy, the myrtle, and the rose possessed peculiar virtues for dissipating the fumes of wine.

Rose culture had made great progress in Rome at the advent of the Christian Era. The Romans not only grew roses with the greatest profusion in their gardens but there were large and extensive commercial growers, the demand for roses for the various fêtes being so great that the private gardens could not supply them. In thus developing rose-growing the Romans soon found that plants responded to heat; in 4 B. C. the Romans were producing roses in winter in hothouses heated with pipes filled with hot water. Seneca (4 B. C.–65 A. D.), who educated Nero, was quite shocked over this supposed violation of the laws of Nature, and declaimed against the use of greenhouses and the production of roses in winter. His protests were unheeded, and during the reign of Domi-

tian (81–96 A. D.) there were many rose-producing plants in Rome.

The Egyptians, hoping to win the favour of Domitian, sent roses from tropical Egypt in the winter, but even an undertaking of such import was laughed to scorn by the Romans, who claimed they had finer roses in Rome at that time of the year than Egypt could produce. Martial, who was the favourite wit of Rome in the time of Domitian, wrote:

> The ambitious inhabitants of the land watered by the Nile have sent thee, O Cæsar, the roses of winter, as a present valuable for its novelty. But the boatman of Memphis will laugh at the gardens of Pharaoh as soon as he has taken one step in thy capital city. . . . Wherever he wanders or casts his eyes, every street is brilliant with garlands of roses. And thou, O Nile, must now yield to the fogs of Rome. Send us thy harvests and we will send thee roses.

Throughout the days of the Roman Empire roses occupied a place of importance, especially in festivals and celebrations. They were associated with every luxury of the empire. In the writings of Lucretius (96 A. D.) we find a description of the festival of Cybele, in which roses were used in the greatest profusion. According to Parsons the greatest exhibition of

lavishness in using roses is to be found as reported by Suetonius, of the festival given by Nero in the Gulf of Baiae, the expense for roses alone for this event being more than four million sesterces—about $100,000.

While it was the custom of the early Romans to use crowns of roses for many occasions, this practice was prohibited by the early Christians, on the ground that such crowns were too closely associated with paganism. Clement of Alexandria, who was born 150 years after the beginning of the Christian Era and was head of the catechetical school at Alexandria (190–203 A. D.), thought it improper for Christians to crown themselves with roses.

Although the early Christians were opposed to crowns and garlands of roses, they nevertheless continued to grow the plants, and gradually, with the growth of the Roman Catholic faith, the rose was introduced into church ceremonies. The rosary, or string of prayers, which was first made by stringing rose-pods, was established as an institution of the church in 667 A. D.

The Catholic Church was the first to adopt the rose in church ceremonies. The first celebration where it was so employed was the

festival of the rose, still observed in Spain and some other countries, which marks the anniversary of the victory of the Christians over the infidels at Lepanto. Even prior to this time, although it did not figure in any great celebration or take on the importance it did in later years, the church adopted the custom of awarding the golden rose. This is probably to-day, and has been in modern times, since the Crusades started, the most distinguished gift or mark of reward bestowed by the Roman Catholic Church.

The history of the rose during the Dark Ages, when it was kept alive by the Moors and Persians; the part it took in the activities of Mohammed and his hordes, are history, as is the first record of the rose in Ireland, how it figured in the wars of early England, and its travels into France and Germany.

From these records of the ancients we can see that the rose was the queen of their flower-gardens, just as it is to-day the queen of ours. The rose of antiquity, as does the rose of to-day, exercised a unique charm, through its brilliancy of colour, the elegance and beauty of its form, and its delightful perfume. It appeals more

strongly to-day to us for the part it has played in the world's history, for in its career it has never lost its character of distinctiveness, and its position to-day is the same as it was nearly 3,000 years ago, when it was justly crowned "The Queen of Flowers."

THE END